iControl® Prodigy® Console Hardware Manual

Installation, Troubleshooting, Repair, Parts

Part 1105820A02

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Nordson Corporation welcomes requests for information, comments, and inquiries about its products. General information about Nordson can be found on the Internet using the following address: http://www.nordson.com.

Address all correspondence to:

Nordson Corporation
Attn: Customer Service
555 Jackson Street
Amherst, OH 44001

Notice

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Table of Contents

Section 1
Safety

Introduction

Read and follow these safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to all persons operating or servicing equipment.

Qualified Personnel

Equipment owners are responsible for making sure that Nordson equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

Intended Use

Use of Nordson equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.

Some examples of unintended use of equipment include

- using incompatible materials
- making unauthorized modifications
- removing or bypassing safety guards or interlocks
- using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

Regulations and Approvals

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson equipment will be voided if instructions for installation, operation, and service are not followed.

All phases of equipment installation must comply with all federal, state, and local codes.

Personal Safety

To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing any moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- Obtain and read Material Safety Data Sheets (MSDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Provide adequate ventilation to prevent dangerous concentrations of volatile materials or vapors. Refer to local codes or your material MSDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

Grounding

WARNING: Operating faulty electrostatic equipment is hazardous and can cause electrocution, fire, or explosion. Make resistance checks part of your periodic maintenance program. If you receive even a slight electrical shock or notice static sparking or arcing, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.

All work conducted inside the spray booth or within 1 m (3 ft) of booth openings is considered within a Class II, Division 1 or 2 Hazardous location and must comply with NFPA 33, NFPA 70 (NEC articles 500, 502, and 516), and NFPA 77, latest conditions.

- All electrically conductive objects in the spray areas shall be electrically connected to ground with a resistance of not more than 1 megohm as measured with an instrument that applies at least 500 volts to the circuit being evaluated.
- Equipment to be grounded includes, but is not limited to, the floor of the spray area, operator platforms, hoppers, photoeye supports, and blow-off nozzles. Personnel working in the spray area must be grounded.
- There is a possible ignition potential from the charged human body. Personnel standing on a painted surface, such as an operator platform, or wearing non-conductive shoes, are not grounded. Personnel must wear shoes with conductive soles or use a ground strap to maintain a connection to ground when working with or around electrostatic equipment.
- Operators must maintain skin-to-handle contact between their hand and the gun handle to prevent shocks while operating manual electrostatic spray guns. If gloves must be worn, cut away the palm or fingers, wear electrically conductive gloves, or wear a grounding strap connected to the gun handle or other true earth ground.
- Shut off electrostatic power supplies and ground gun electrodes before making adjustments or cleaning powder spray guns.
- Connect all disconnected equipment, ground cables, and wires after servicing equipment.

Refer to the *Installation* section of this manual for more information on grounding.

Action in the Event of a Malfunction

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

- Disconnect and lock out electrical power. Close pneumatic shutoff valves and relieve pressures.
- Identify the reason for the malfunction and correct it before restarting the equipment.

Disposal

Dispose of equipment and materials used in operation and servicing according to local codes.

Safety Labels

Table 1-1 contains the text of the safety labels on the iControl console. The safety labels are provided to help you operate and maintain your console safely. See Figure 1-1 for the location of the safety labels.

Item	Part	Description
1.	1034161	**WARNING:** Disconnect power before servicing.

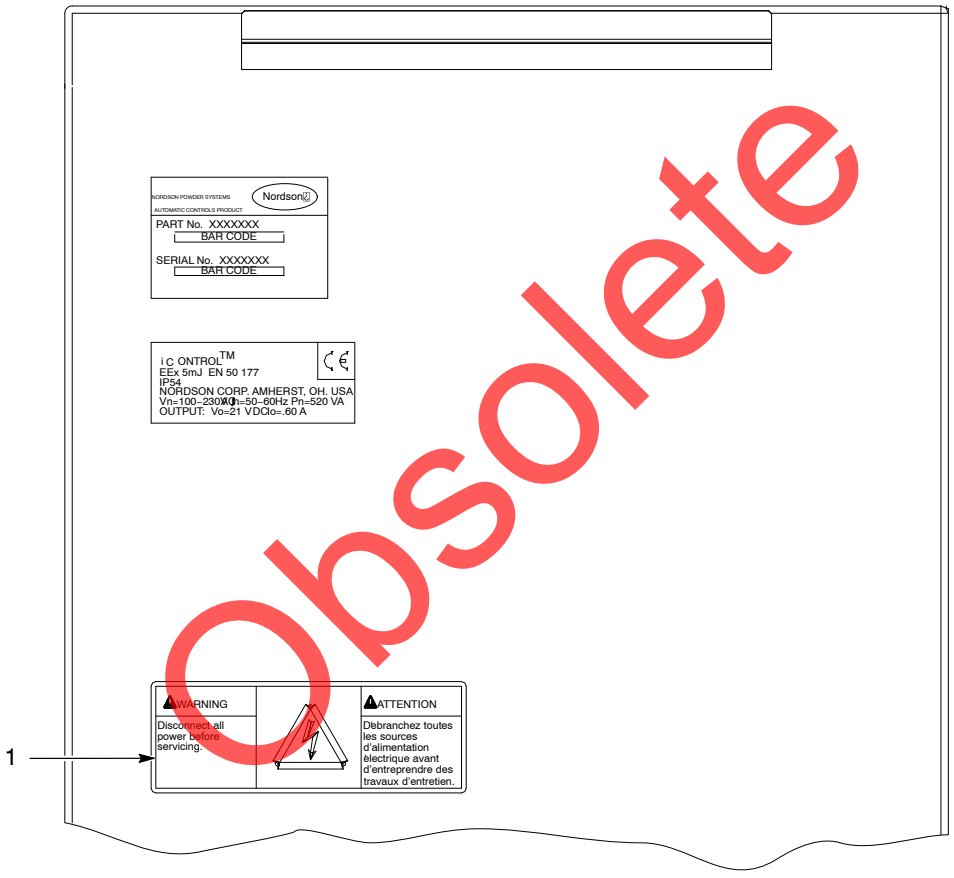


Figure 1-1 Safety Labels

Section 2
System Overview

iControl System Manuals

This manual covers the iControl console and system hardware for **iControl with Prodigy Technology** systems, used with Prodigy spray guns only.

iControl manuals are organized as follows:

Operator Interface Manual for all versions of the system, covering configuration, preset setup, and operation using the iControl software:

- 1056418

Operator Card for all versions:

- 1024758

Hardware Manual, covering installation, troubleshooting, repair, and parts:

- Prodigy iControl Hardware: 1105820

A Prodigy iControl system console controls up to 32 automatic guns.

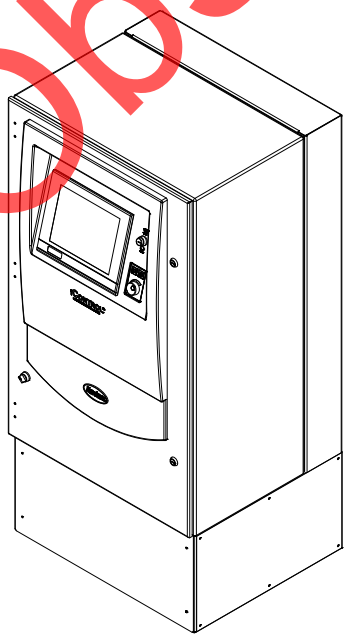


Figure 2-1 Prodigy iControl Console

Console and System Hardware and Software

See Figures 2-3 and 2-2.

A fully equipped console controlling 32 Prodigy automatic spray guns contains the following hardware:

- operator interface consisting of LCD touch-screen display, rotary dial, and interlock keyswitch
- single board computer (SBC), with Ethernet PCI card
- two CompactFlash cards, for system software and user data
- I/O board, two subpanels with backplanes, card cages, and 16 gun control cards (one card controls two guns)
- 24Vdc power supplies
- alarm, remote lockout, and conveyor interlock relays

The system requires the following external hardware:

- photoeye junction box
- zone photoeyes or discrete scanners
- part ID photoeyes or discrete scanners, or inputs from customer part ID system
- conveyor encoder
- conveyor interlock relay
- network interface box
- Prodigy feed center, with four pump panel containing 32 HDLV pumps and 16 control cards (one card controls two pumps)

Options

In/Out Positioners (Horizontal or Vertical)

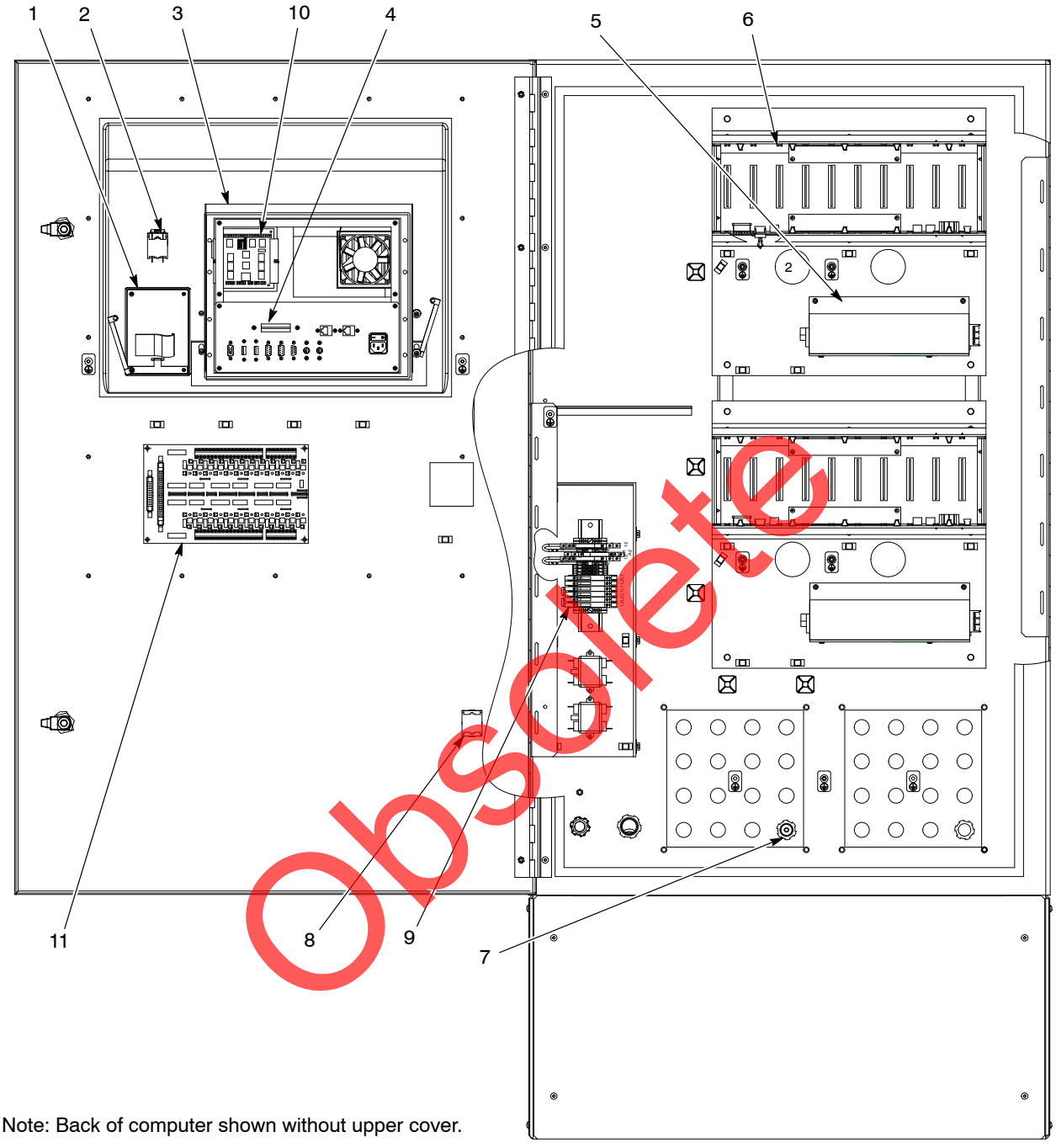
- analog scanners to measure part dimensions
- scanner junction box
- in/out positioners and control panels
- network interface box, Ethernet cables, and Ethernet PCI card

Reciprocators

- analog scanners to measure part height
- reciprocators
- in/out positioner/reciprocator control panels

2nd Booth Option (2nd booth shares encoder signal, zone and part ID signals, and if in/out positioners and reciprocators are used, scanner signals):

- Ethernet switch installed in scanner junction box



Note: Back of computer shown without upper cover.

Figure 2-2 iControl Prodigy Console Internal Components

1. Keypad
2. 3-Position interlock switch
3. Computer and LCD display
4. CompactFlash cards
5. Power supply
6. Card cage with gun control cards
7. Gun cable receptacles
8. Power switch
9. Relays and fuses
10. I/O and interface cards
11. I/O board

Operator Interface

The iControl software provides a graphical user interface that provides screens to configure and control the spray gun triggering and positioning system.

The operator performs all configuration and operation tasks with the touch screen and the **Rotary Dial**. Turning the rotary dial increases or decreases values in selected fields.

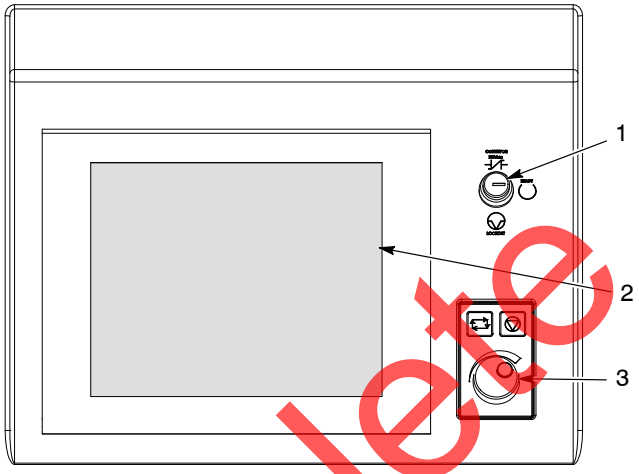


Figure 2-3 Master Console Front Panel

1. Interlock keyswitch
2. LCD touch screen
3. Rotary dial

Interlock Keyswitch Functions

In the **Ready** position, the spray guns cannot be triggered unless the conveyor is running. This prevents powder waste and hazardous operating situations.

In the **Bypass** position, you can trigger the guns on and off without running the conveyor. Use the Bypass position to set up and test spray gun settings.

In the **Lockout** position, the guns and the gun movers are disabled. Use this position when working inside the booth.

CAN and Ethernet Networks

Refer to the system diagram in Section 7.

CAN Network: Handles internal communications between the gun control cards, iFlow modules, and the iControl PC, and with other iControl consoles.

Ethernet Network: Handles external communications between the iControl system and remote devices such as optional in/out positioners, reciprocators, and analog scanners.

Digital Inputs

The iControl console includes an interface board that provides optically isolated digital inputs. Included are

- eight inputs for zone detection
- eight inputs for part identification
- one input for a conveyor motion encoder
- one input that locks out guns when any booth exhauster is off (only used on multiple booth systems using a single iControl)

The encoder, zone and part ID photoeyes or discrete (digital) scanners with or customer part ID inputs are connected to a terminal block in the Photoeye Junction Box (PEJB). A 24Vdc power supply in the PEJB provides power for these devices.

A 25-conductor input cable connects the PEJB to the iControl master console. If the master console cannot be located within direct wiring range (19 ft) of the PEJB, an extension box and extra cable are provided. If the system is equipped with a remote I/O (Ethernet) network, then the 25-conductor cable is routed through a network junction box.

Encoder

The iControl system provides one optically isolated digital input for a conveyor motion encoder. The encoder can be either mechanical or optical and must have a 50% duty cycle.

At an encoder resolution of one inch to one pulse (1:1), the effective distance parts can be tracked by the iControl system is approximately 1333 feet. At a 2:1 resolution ($^1/_2$ inch per pulse, the effective tracking distance is halved, to approximately 666 feet.

The maximum speed of the encoder input is 10 Hz (10 pulses per second). This may require a trade off between desired conveyor speed and part tracking resolution (the higher the conveyor speed the coarser the tracking resolution).

NOTE: A timer may be used instead of an encoder. Consult with your Nordson representative.

Gun Control Cards

Each gun control card in the card cage provides electrostatic controls for two powder spray guns. The cards provide 0–21 Vdc power to the Prodigy automatic gun voltage multipliers and process feedback from the guns for display on the operator interface.

Prodigy manual spray guns are controlled by the manual gun controllers.

Gun Pump Control

The iControl console and the manual gun controllers control the Prodigy HDLV powder pumps through the CAN network. In the pump cabinet, one pump control card controls two pumps.

Refer to the Prodigy HDLV pump and pump panel manuals for wiring diagrams, parts lists, and other information.

Specifications

General

Electrical Requirements	
Input	Unswitched: (PC) 100–230 Vac, 50/60 Hz, 1 ∅, 120 VA max.
	Switched: 100–230 Vac, 50/60 Hz, 1 ∅, 480VA max.
	Conveyor Interlock and Remote Lockout: 120/230 Vac, 50/60 Hz, 1 ∅, 6 mA
	Alarm Relay contact rating: 120/230 Vac, 1 ∅, 6 A
Output (to spray gun)	0–21 Vdc, 0.60 A
NOTE: The iControl system must be interlocked with the fire detection system so that the spray guns are shut off if a fire is detected inside the spray booth.	
ANSI/ISA S82.02.01	
Pollution Degree	2
Installation (Overvoltage)	Category II
Environmental	
Operating Temperature	32–104 °F (0–40 °C)
Operating Humidity	5–95%, non-condensing
Hazardous Location Rating	North America: Class II Divison 2, Groups F & G
	European Union: Ex II 3D

Prodigy Pump and Spray Gun Pattern Air Quality

Air must be clean and dry. Use a regenerative desiccant or refrigerated air dryer capable of producing a 3.4 °C (38 °F) or lower dew point at 7 bar (100 psi) and a filter system with prefilters and coalescent type filters capable of removing oil, water and dirt in the submicron range.

Recommended Air Filter Screen Size:	5 micron or smaller
Maximum Oil Vapor in Air Supply:	0.1 ppm
Maximum Water Vapor in Air Supply:	0.48 grains/ft^3

Moist or contaminated air can cause the HDLV pumps to malfunction; the powder to cake in the reclaim system, or clog the feed tubing, and spray gun powder paths.

Special Conditions for Safe Use

Caution should be taken when cleaning plastic surfaces of the iControl. There is a potential for static electricity build up on these components.

Approvals

FM (US / Canada), CE / ATEX
Rated for Class II Division 2 Groups F & G Hazardous Location Area (North America), or Normal Usage Area, Zone 22 (European Union)

Approved Program and User Data Cards

SanDisk, Toshiba, PNY, and Memorex 128 Mb (minimum) CompactFlash cards.

CompactFlash card capacity: 512 Mb minimum – Type I CompactFlash only.

NOTE: *Retail* CompactFlash refers to devices available at camera, computer, and electronic retail shops. Retail flash has a rating of 30,000 to 600,000 write cycles at a maximum of 75°C (167°F) and may experience a shorter overall life.

Industrial CompactFlash refers to rated devices only available through an electronics parts supplier and online sources that sell CompactFlash with an industrial temperature rating for use in Embedded Systems. Industrial flash has a rating of 2,000,000 write cycles and an increased temperature range to 85°C (185°F).

Devices that have been validated:

- SanDisk – retail to 2 GB, industrial to 1 GB
- Toshiba – retail to 2 GB
- PNY – retail to 2 GB
- Dane-Elec – retail 512 MB
- Kingston Technology– retail to 4 GB
- Smart Modular Technologies – industrial to 1 GB
- SMC Numonyx – industrial to 1 GB
- Silicon Systems – industrial 512 MB
- Transcend – industrial 512 MB
- SanDisk – industrial 4 GB and larger (must be used in pairs)

NOTE: With the industrial Sandisk, the system will not boot completely or in a timely manner when either the data or program flash differs in size.

Incompatible devices with iControl:

- LEXAR – any
- Type II – any (Type II CompactFlash are larger and will not fit into the device holder.

Section 3
Installation

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

WARNING: This equipment can be dangerous unless it is used in accordance with the rules laid down in this manual.

Introduction

iControl systems are configured for each customer's application and requirements. The equipment supplied with the system varies depending on the type of installation (new, upgrade, or retrofit) and the equipment furnished by the customer. Therefore, this section provides only basic installation information. Detailed information is contained in the system wiring diagrams, plan views, and other documentation furnished by Nordson application engineering.

Refer to Section 7 for system diagrams and console, junction box, and control panel drawings.

Once all hardware is installed and wired and the system is powered up, the operator interface is used to configure, setup, and operate the system. Refer to the *iControl Operator Interface* manual for configuration instructions.

WARNING: Use dust-tight conduit connectors or strain reliefs in all iControl console, junction box, and control panel knockouts. Installation must be done according to code and care must be taken to maintain the dust-tight integrity of the enclosures.

Hardware Installation

Refer to the drawings furnished by Nordson application engineering for locations of the consoles, junction boxes, and other system devices.

Bolt the iControl consoles to the floor. The photoeye junction box is typically mounted on the photoeye stand. All other junction boxes are mounted on the booth, operator platforms, or feed center, according to their function.

Refer to your Nordson plan view drawings for locations and mounting details.

CAN Network Connections and Settings

The iControl console communicates with the manual gun controllers and pump control cards through a CAN network. See Figure 3-1 for connections. Make sure each cable shield is connected on one end only.

NOTE: The termination jumper must be installed on W1 pins 1 and 2 on the last pump control card in the last pump cabinet on the feed center.

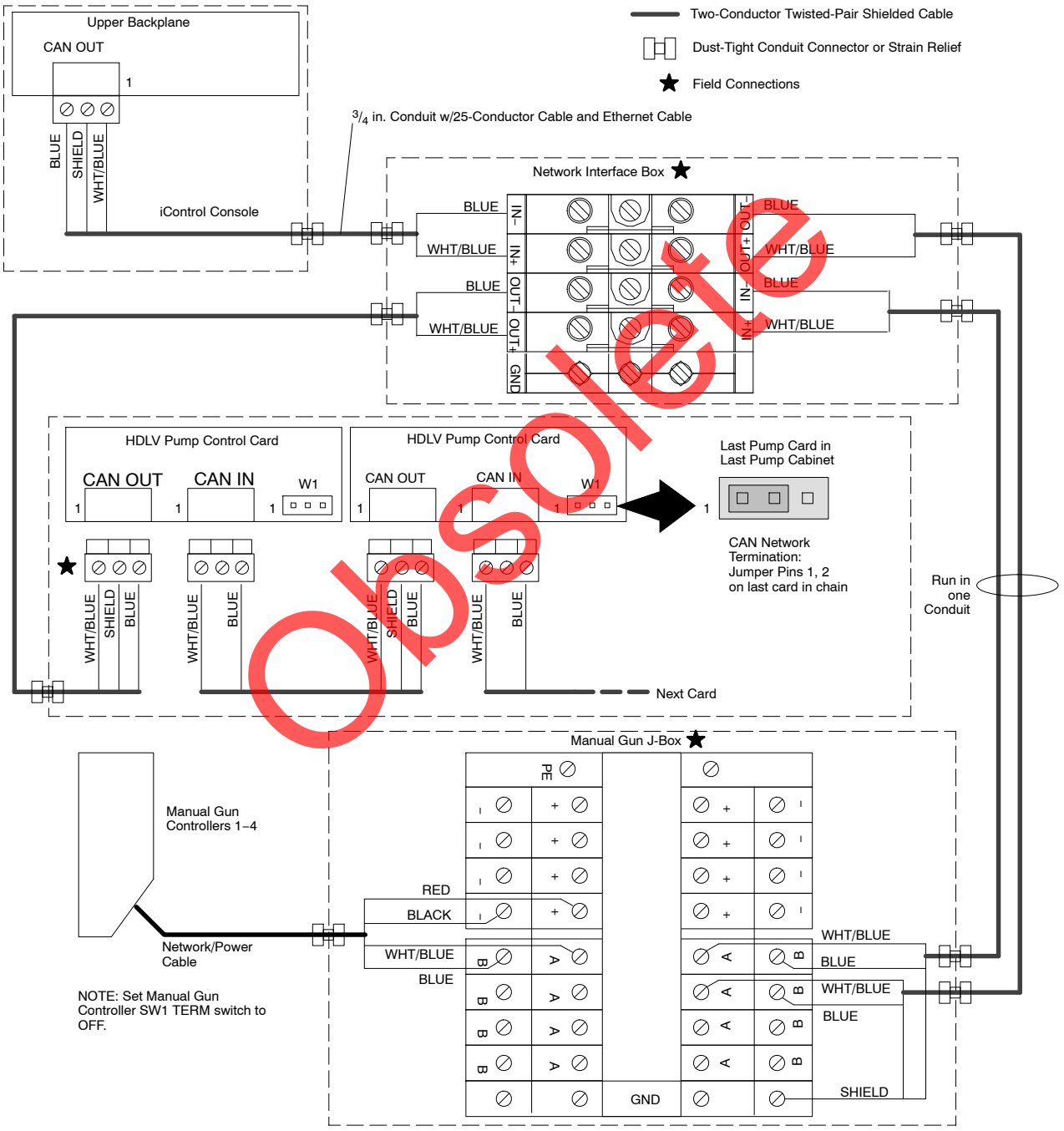


Figure 3-1 CAN Network Cable Connections

iControl Console CAN Address and Termination Settings

The backplane address dipswitches are set at the factory:

1. Network terminator switch SW1-3 is set to CONTINUOUS for both backplanes.
2. Network address switches SW1-1 and 2 are set to Guns 1–16 for the lower backplane and to 17–32 for the upper backplane (if used).

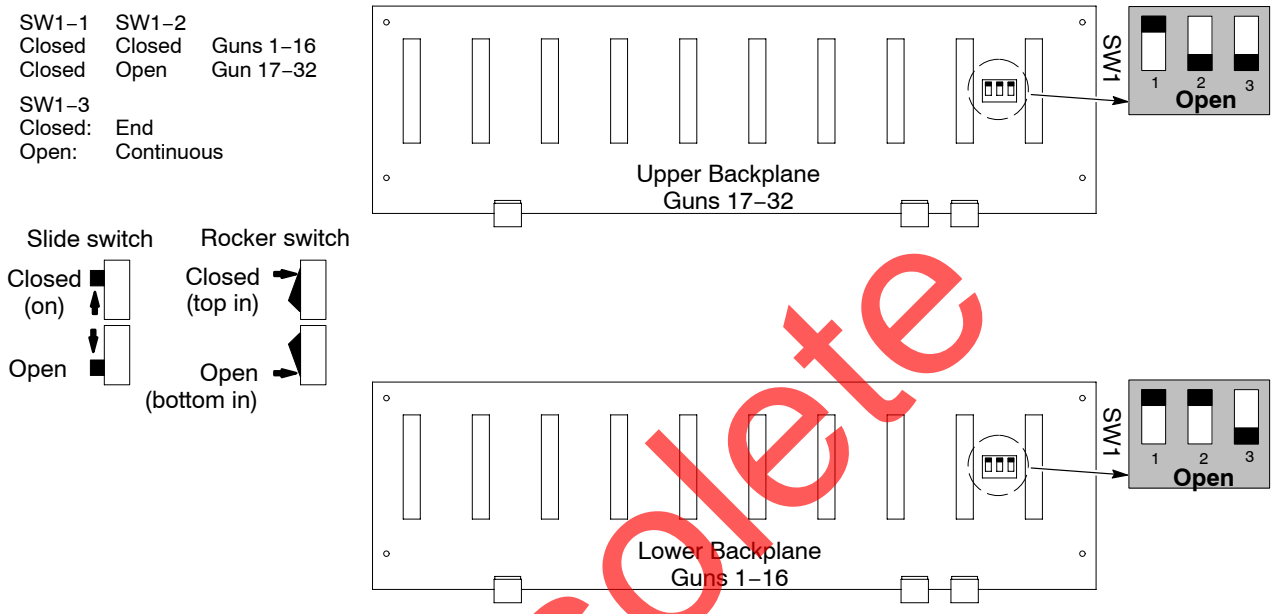


Figure 3-2 CAN Network Connections, Console Addresses, and Termination

Manual Gun Controller Addresses

The manual gun controller addresses are set through software. Each controller must have a unique address. Up to four manual guns can be included in a system. Refer to the *Prodigy Manual Gun Controller* manual for instructions.

NOTE: For each HDLV pump choosen to supply powder to a manual gun, you must enter the pump calibration numbers into the gun controller. Refer to the *Prodigy Manual Gun Controller* manual for instructions.

Manual Gun Controller Termination

Manual gun controllers are shipped with their CAN termination switch set to ON. For each manual gun controller in the system:

1. Open the controller enclosure and locate SW1 on the controller interface board.
2. Set the TERM switch on SW1 to OFF.

Pump Control Card Addresses

Refer to the *Prodigy HDLV Pump Manifold and Circuit Board* manual for instructions on setting the control card address and gun type switches.

The termination jumper must be installed on W1 pins 1 and 2 on the last pump control card in the last pump cabinet on the feed center.

NOTE: The calibration numbers for the HDLV pumps supplying powder to the automatic guns must be entered into the iControl configuration. Refer to the *iControl Operator Interface* manual for instructions.

Power, Ground, and Relay Connections

The console and junction box power cable ground wires must always be connected to a true earth ground. The special flat braided ESD ground cables provided with the iControl consoles and manual gun controllers must be used to connect them to the booth base if possible. Refer to *Grounding* on page 3-6 for more information.

WARNING: Consoles and all conductive equipment in the spray area MUST be connected to a true earth ground. Mount the junction boxes and control panels to grounded stands or the booth base. Connect the consoles to the booth base with the special flat braided cables provided. Failure to observe this warning could result in damage to sensitive electronic equipment and severe shocks to personnel, or fire or explosion.

Console Power Cable Connections

Table 3-1 lists the connections required for console power. Refer to page 3-10 for optional junction box and control panel power requirements.

Refer to Section 7 for the system diagram, console wiring diagrams, and junction box and control panel drawings. Refer to your system electrical drawings for all other power and ground connections.

Table 3-1 Console Power Cable Connections

Master Console Power Cable Connections		
Wire Color	**Connection**	**Function**
Black	L1 (hot)	100–240 Vac power to iControl PC (master console only) (unswitched)
White	L2 (neutral)	
Brown	L1 (hot)	120–240 Vac power to console power supply (switched with booth exhaust fan motor)
Blue	L2 (neutral)	
Green/Yellow	Chassis Ground	
Gray (2)	Remote Lockout: 240 Vac, 1 phase, 6 mA (for 120 Vac, refer to instructions below)	
Yellow (2)	Alarm contacts: 120/230 Vac, 1 phase, 6 A max. Contact is closed with no power to console or when alarm is present. Contact is open with power applied to console and no alarms present.	
Red, Orange	Conveyor Interlock: 240 Vac, 1 phase, 6 mA (for 120 Vac, refer to instructions below)	

Conveyor Interlock and Remote Lockout

The conveyor interlock and remote lockout relays in the iControl console are wired at the factory for 240 Vac. To switch the connections to 120 Vac, see Figure 3-3. Do not remove the 20K resistors.

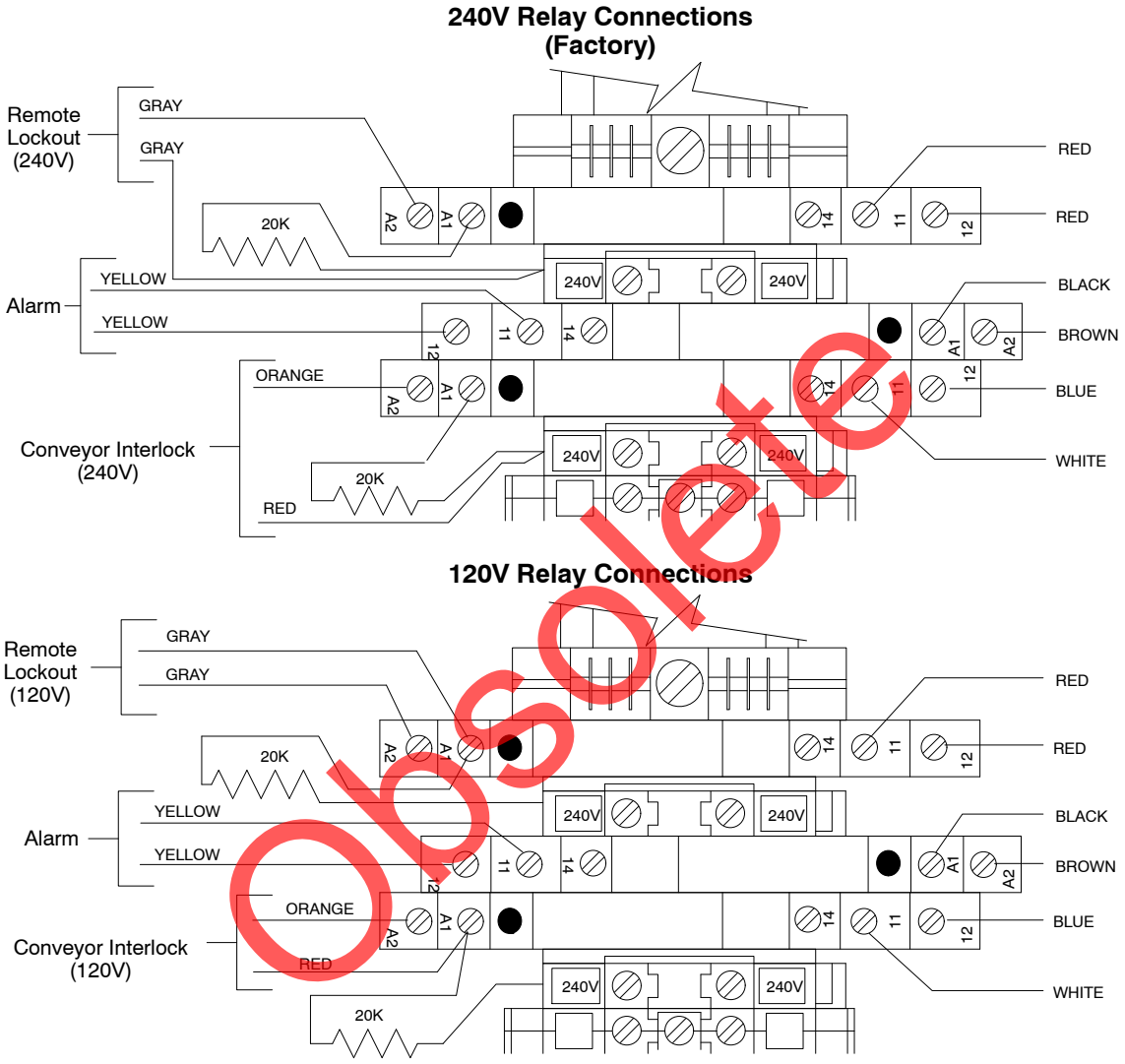


Figure 3-3 240 Vac (Factory) and 120 Vac (Optional) Conveyor Interlock and Remote Lockout Relay Connections

Grounding

Proper grounding of all conductive components of a powder coating system provides both shock and electrostatic discharge protection for both operators and sensitive electronic equipment. Many system components (booth, collector, color modules, control consoles, and conveyor) are connected both physically and electrically. It is important that the proper grounding methods and equipment are used when installing and operating the system.

PE (Protective Earth) Grounding

PE grounding is required on all conductive metal electrical enclosures in a system. PE grounding is provided by a ground conductor wire bonded to a true earth ground. PE grounding protects operators from electrical shock by providing a path to ground for electrical current if a conductor contacts an electrical enclosure or other conductive component. The ground conductor wire carries the electrical current directly to ground and short circuits the input voltage until a fuse or circuit breaker interrupts the circuit.

The green/yellow ground wires bundled with the AC input power cable are used only for PE grounding and their sole purpose is to protect personnel from a shock. These ground wires do not protect against electrostatic discharge.

Electrostatic Grounding

Electrostatic grounding protects electronic equipment from damage caused by electrostatic discharges (ESD). Some electronic components are so sensitive to ESD that a person can deliver a damaging static discharge without feeling even a mild shock.

Proper electrostatic grounding is mandatory in an electrostatic powder coating system. Powder spray guns generate electrostatic voltages up to 100,000 volts. It does not take long for ungrounded system components to build up an electrical charge strong enough to damage sensitive electronic components when discharged.

Electrostatic discharges occur at very high frequencies, around 100 megahertz. An ordinary ground conductor does not conduct such high frequencies well enough to prevent damage to electronic components. Special flat braided cables are provided with your Nordson powder coating equipment to protect against ESD.

Gun Current Path

Refer to Figure 3-4. All electrical circuits need a complete path for current to make its way back to the source (circle=circuit). Electrostatic spray guns emit current (ions) and therefore require a complete circuit. Some of the current emitted by the spray gun is attracted to the spray booth, but most is attracted to the grounded parts moving through the booth. The current attracted to the parts flows through the part hangers to the conveyor and to the building ground, back to the controller through a ground braid and back to the spray gun through the gun driver board. The current attracted to the booth is returned through the booth ground to the controller and back to the gun.

It is very important to provide a complete circuit for the gun current. A break in the circuit conductors (conveyor, booth, braided ground cables, controller) can cause voltage to build up on the conductors up to the maximum output of the spray gun voltage multiplier (up to 100 kV). The voltage will eventually discharge in a high frequency arc and cause damage to the controller electronics (gun driver board and power supply).

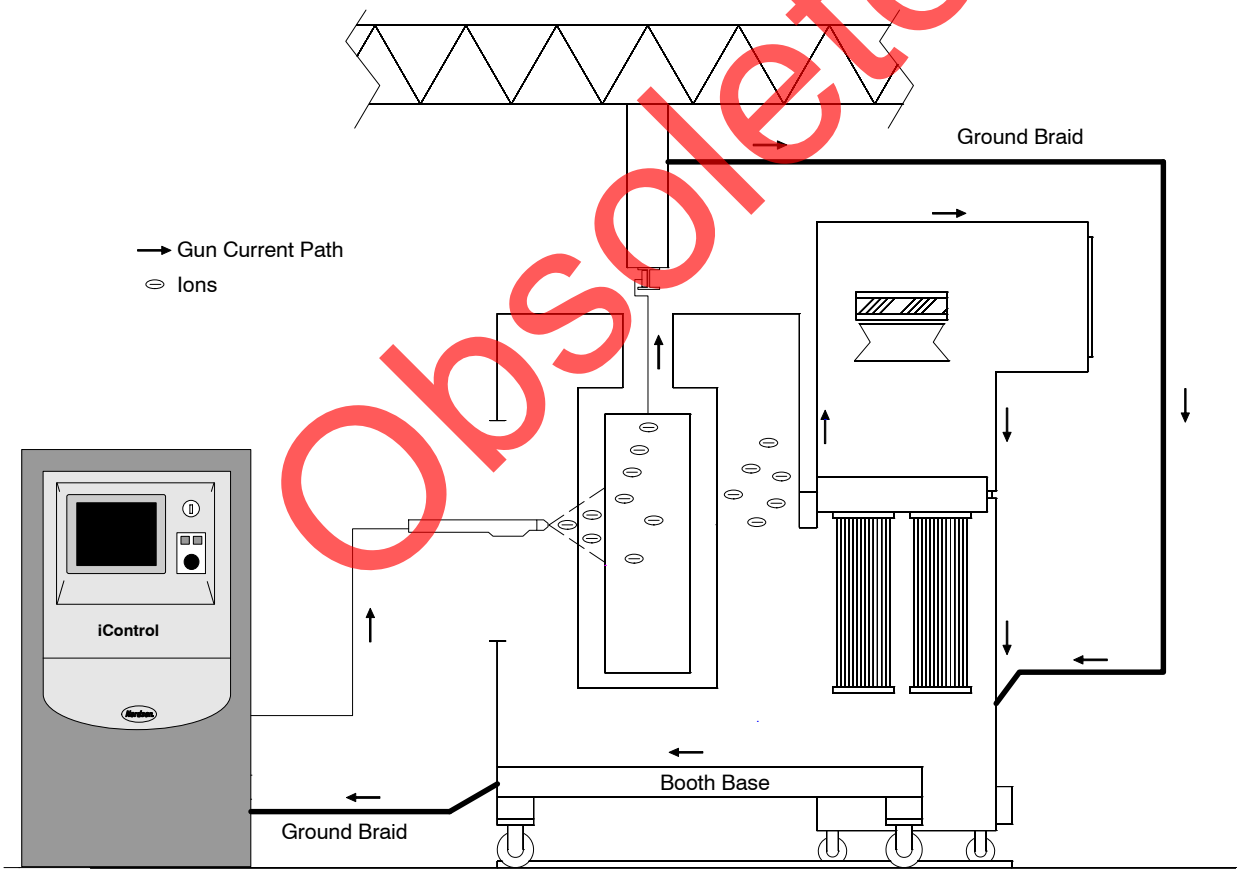


Figure 3-4 Electrostatic Current Path

ESD Ground Procedures and Equipment

The best protection against ESD is to keep the ground braids as short as possible and connect them to a central point on the booth base as shown in the Star diagram. Under normal conditions making Star connections is not a problem, but in some systems, such as roll-on/roll-off booths, the ground braids required for a Star connection are too long to be effective against ESD. In this case, a Daisy Chain ground configuration is acceptable.

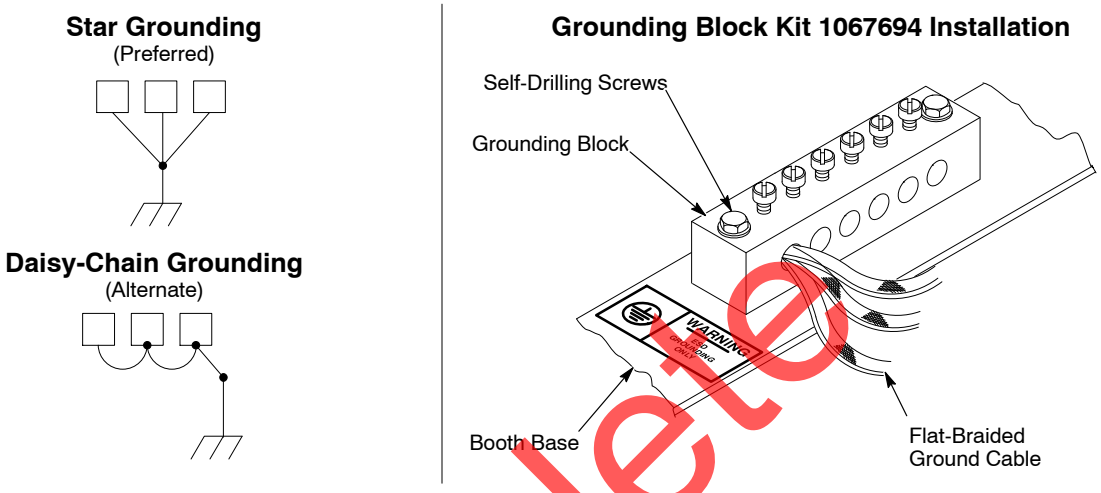


Figure 3-5 ESD Grounding Procedures and Equipment

Always use the special flat braided copper ESD ground cables furnished with all Nordson spray gun controllers to ground them. The ESD ground cables should always be attached to the welded booth base, not to a panel, enclosure, or other component bolted to the base. Keep the cables as short as possible. If using a grounding block kit, make sure the block is installed directly to the welded base with the included self-drilling screws.

An ESD grounding block kit is available for connecting the ground braids to the booth base. The kit contains two 6-position grounding blocks, fasteners, terminals, and 15 meters (50 feet) of braided ground cable. If additional kits are required, order:

1067694 Kit, ground bus bar, ESD, 6–position, with hardware

Encoder, Zone, and Part ID Connections

A 25-conductor cable carries conveyor encoder and discrete part ID and zone input signals from the Photoeye Junction Box (PEJB) to the I/O board in the iControl console. If these inputs are shared by a second booth then an additional 25-conductor cable is supplied. Table 3-2 lists the 25-conductor cable connections to be made at the terminal strip.

Section 7 contains a system wiring diagram, console wiring diagram, and diagrams for the junction boxes and control panels listed in Table 3-3.

NOTE: Refer to your system plan views when locating the part ID stand and mounting the photoeyes or scanners.

25-Conductor Cable Connections

Table 3-2 Parallel Cable Connections: I/O Board to Junction Box Terminals (Inputs to I/O Board are Sinking)

Wire Color	I/O Board Terminal	Junction Box Terminal Number	Function
BLK	8 LO	1	Zone 1
WHT	9 LO	2	Zone 2
GRN	10 LO	3	Zone 3
ORG	11 LO	4	Zone 4
BLU	12 LO	5	Zone 5
WHT/BLK	13 LO	6	Zone 6
RED/BLK	14 LO	7	Zone 7
GRN/BLK	15 LO	8	Zone 8
ORG/BLK	20 LO	9	Part ID bit 1
BLU/BLK	21 LO	10	Part ID bit 2
BLK/WHT	22 LO	11	Part ID bit 3
RED/WHT	23 LO	12	Part ID bit 4
GRN/WHT	0 LO	13	Part ID bit 5
BLU/WHT	1 LO	14	Part ID bit 6
BLK/RED	2 LO	15	Part ID bit 7
WHT/RED	3 LO	16	Part ID bit 8
ORG/RED	4 LO	—	Trigger Bank 0
BLU/RED	5 LO	—	Trigger Bank 1
RED/GRN	6 LO	—	Trigger Bank Select Enable
ORG/GRN	7 LO	20	Encoder A
BLK/WHT/RED	16 LO	—	Spare
WHT/BLK/RED	17 LO	—	spare
RED/BLK/WHT	18 LO	—	Manual Lockout
GRN/BLK/WHT	N/C	—	—
BLUE from Front Panel	19 HI	Not Applicable	Conveyor Interlock
WHITE from Front Panel	19 LO	Not Applicable	Conveyor Interlock
RED	8 HI	(+)	VDC

NOTE: For information on how to use Trigger Banks, see *Using Zone Inputs for Direct Triggering* in the iControl Software Manual.

Switching Inputs to Sourcing

Inputs to I/O card in the iControl console are configured as sinking. 24 Vdc is applied to all HI terminals. To switch the inputs to sourcing:

1. Disconnect all wires from the I/O card LO terminals, except terminal 24. Do not remove the blue and white wires from terminals 24 HI and 24 LO.
2. Move the 6-pole jumpers from the HI terminals to the LO terminals.
3. Install the red wire jumpers to connect all 6-pole jumpers together.
4. Connect the red wire from the 25-conductor cable to terminal 1 LO.
5. Connect the remaining wires to the HI terminals.
6. At the PEJB, connect the red wire to the (–) terminal.

Conveyor Encoder Connections

Bring the encoder cable into the Photoeye Junction Box (PEJB) through a dust-tight conduit at one of the unused knockouts in the PEJB. Wire the cable to the encoder and PEJB terminal strip as shown on the PEJB drawing in Section 7.

Photoeye Connections and Configuration

Connect SO cable to the photoeyes and photoeye junction box terminal block as shown on the PEJB drawing. Route the cables through the cord grips installed in the PEJB as shown.

Configure the photoeyes and set their sensitivity as shown on the PEJB drawing.

Junction Box Power Requirements

Table 3-3 Junction Box/Control Panel Power Requirements

J-Box/Control Panel	Requirement
Photoeye	120–240 Vac, 1 PH, 50/60 Hz, 2A
Network Interface	120 Vac, 1 PH, 60 Hz, 11 watts
In/Out Positioner Scanner	24 Vdc from 30 Watt PEJB
In/Out or Up/Down Positioner Control DC Motor	120 Vac, 1 PH, 60 Hz, 10A
Analog (Retrofit) In/Out Positioner Control	120 Vac, 1 PH, 60 Hz, 2A
In/Out Positioner / Reciprocator Control	120 Vac, 1 PH, 60 Hz, 10A 208–575 Vac, 3 PH, 60 Hz (see wire diagrams)
Up/Down Positioner Control AC Motor	120Vac, 1 PH, 60 Hz, 2A 208–575 Vac, 3 PH, 60 Hz (see wire diagrams)

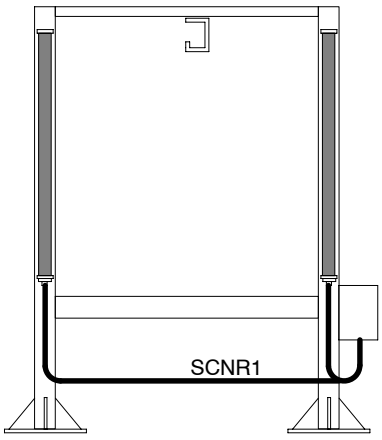
Scanner Cable Connections

See Figure 3-6. The photoeye junction box and scanner junction boxes are shipped with the scanner cables pre-wired to the junction boxes. The scanner controllers are programmed at the factory according to the system order specifications. Refer to your system plan views when locating the part ID stand and scanners or photoeyes. The scanners must be mounted with the cable ends oriented as shown.

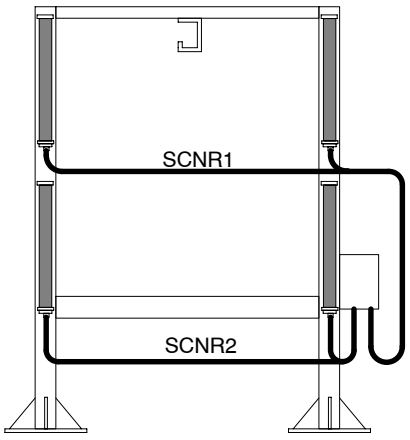
Discrete Scanner Connections

- Single Zone Scanner: SCNR1 cables to scanner.
- Dual Zone Scanners: SCNR1 cables to upper scanner, SCNR2 cables to lower scanner.
- Part ID Scanner and Zone Scanner: SCNR1 cables to zone scanner, SCNR2 cables to Part ID scanner.

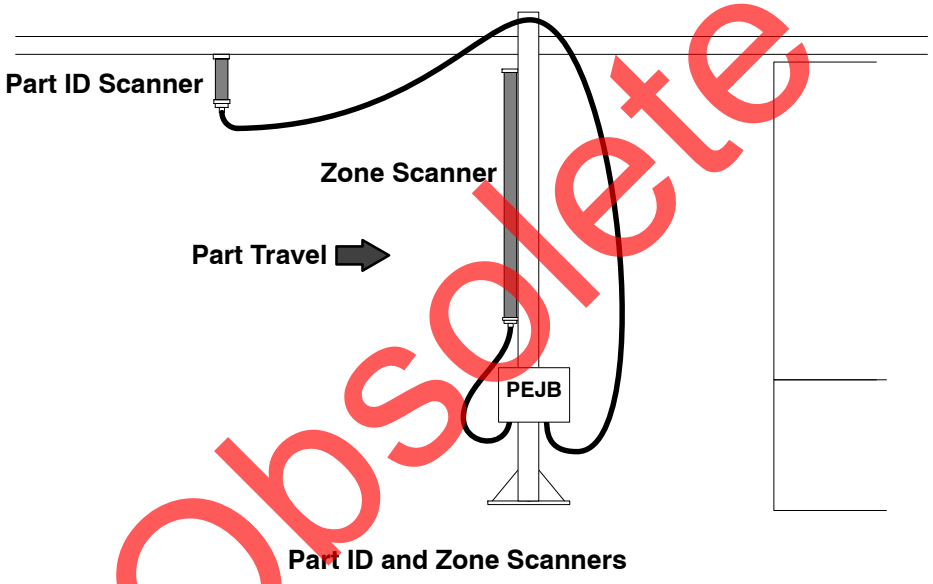
NOTE: The part ID scanner or photoeyes must be located so that the iControl system receives the part ID before the leading edge of the part breaks the zone scanners or photoeyes.



Single Zone Scanner



Dual Zone Scanners



Part ID and Zone Scanners

Figure 3-6 Zone and Part ID Scanner Cable Connections

Analog Scanner Connections

See Figure 3-7. The in/out positioner scanner junction box is typically located on the same stand as the photoeye junction box. One or two scanners can be used to detect the width of the parts. The scanners must be mounted with the cable ends oriented as shown. If using dual scanners, mount them so that they do not see the conveyor. Connect the positioner scanner cables (BSCE, BSCR) from the junction box to the scanners as shown.

If the system also has reciprocators, then analog scanners are used to detect the part height and top and bottom edges. Mount the scanners with the cable ends down and connect the cables (SCNR1) from the PEJB to the scanners.

Scanner Cable Connections *(contd)*

Maximum Analog Scanner Separation:
6 meters (20 ft) if scanner is less than 1.22 meters (4 ft) long
4.6 meters (15 ft) if scanner is greater than 1.22 meters (4 ft) long.

NOTE: If using a single horizontal scanner, the controller must be programmed to ignore the conveyor. This requires software from the scanner manufacturer, a laptop running Windows, and a serial cable to connect the laptop to the scanner controller in the junction box.

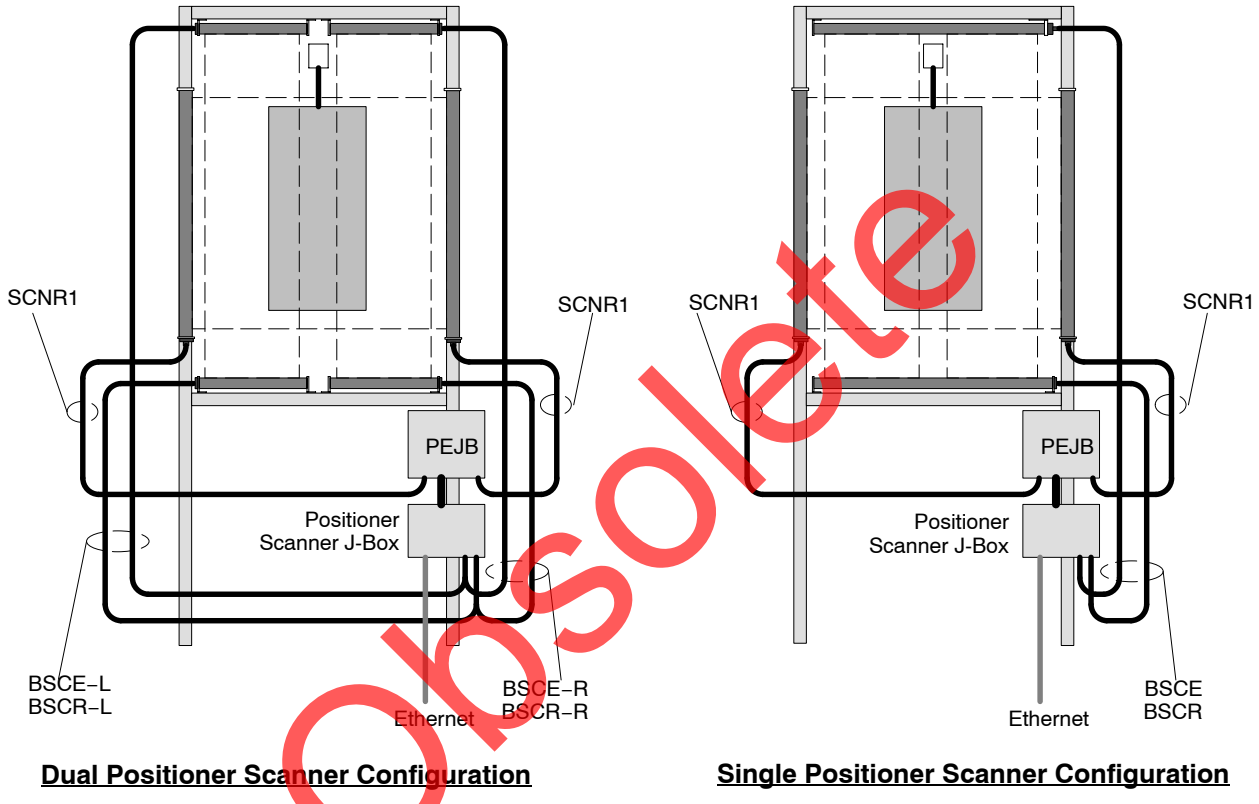


Figure 3-7 In/Out Positioner and Reciprocator Analog Scanner Connections

Customer-Supplied Part ID System Connections

Refer to Table 3-2. Use the Part ID terminals on the PEJB to connect a customer-supplied part ID system to the iControl console. The 8 inputs are used based on the settings made in the Photoeye Configuration screen. Refer to the *iControl Operator Interface* manual for configuration instructions.

Ethernet Network Connections

The Ethernet network allows the iControl system to communicate with remote Ethernet devices such as the in/out positioner or reciprocator controllers and the Ethernet couplers that receive signals from the analog scanner controllers.

NOTE: Do not connect any device to this network that is not approved by Nordson Finishing Technical Support or Engineering.

The required field connections are shown in Figure 3-8, along with the connections required for sharing the in/out positioner scanner with a 2nd booth. Refer to Section 7 for junction box and control panel drawings.

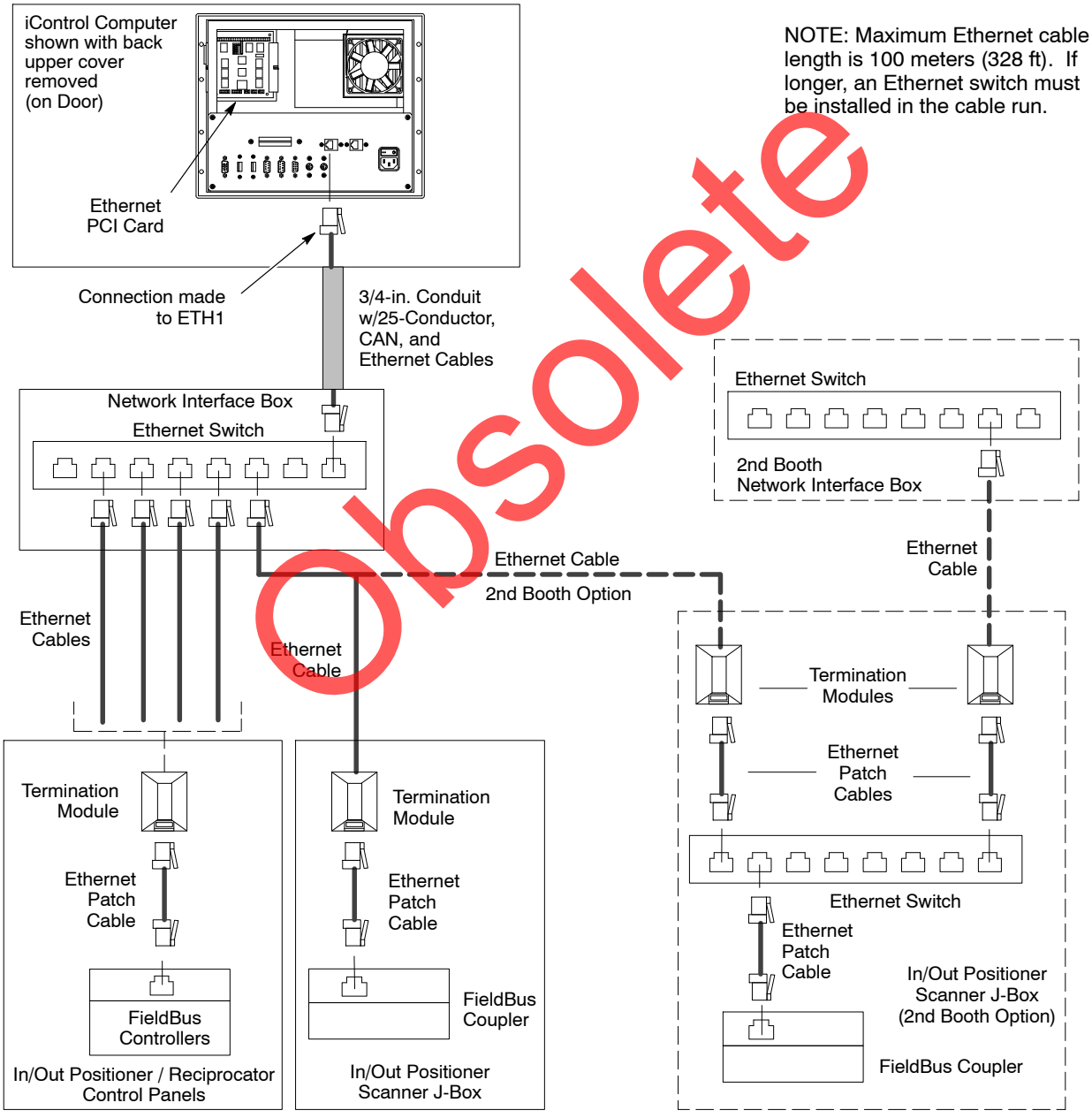


Figure 3-8 Remote I/O Network Equipment and Connections (with Connections for 2nd Booth Option)

iControl Console to Network Interface Box

Connect the 3/4 in. flexible conduit to the network interface box if you have not already done so. Plug the Ethernet cable bundled in the conduit to any unused port in the Ethernet switch. The other end of the cable is plugged into the iControl PC Ethernet card.

Ethernet Switch to Ethernet Devices

NOTE: There are two Ethernet cable types, T568-A and T568-B. The type determines the way the cable leads are wired at each end of the cable. Either type of cable can be used in the iControl system. **Each end of the cable must be terminated using the same wiring arrangement.**

Refer to the *Parts* section for 100- or 300-foot T568-B Ethernet CAT 5e cables. Use these cables to connect the Ethernet switch in the network junction box to the Ethernet controllers in the junction boxes and control panels.

1. Measure the lengths needed plus enough slack at each end so that you can pull the cables into the junction boxes and then connect the cables to termination modules or RJ-45 plugs.
2. Cut the cables to length, leaving an RJ-45 plug on one end.
3. Pull the cut ends of the cables through flexible conduit from the network interface box to the junction boxes or control panels.
4. In the network interface box, plug the cables into the Ethernet switch.
5. At the junction boxes or control panels terminate the cables with one of these methods:
   - Each junction box or control panel includes a termination module and patch cord. Install the termination modules on the end of the cables as described in *Connecting Termination Modules to Ethernet Cables* on page 3-16, then use the patch cords to connect the termination modules to the Ethernet controllers.
   - Install RJ-45 plugs on the ends of the cables as shown in *Ethernet Termination Standards* on page 3-18 and plug the cables into the Ethernet controllers.

NOTE: It is a good idea to test all cables with an Ethernet continuity tester before connecting them. Refer to *Troubleshooting* for test procedures.

MAC Addresses

Record the MAC address and device function for each Ethernet controller in the junction boxes and control panels. For the in/out positioners note the location (left front = GM1, right front = GM2, left rear = GM3, right rear = GM4). The MAC addresses are on the controller labels, in the form 0:30:DE:0:33:C8.

You will need the MAC addresses when configuring the network with the iControl operator interface. Refer to the *iControl Operator Interface* manual for instructions.

Connecting Termination Modules to Ethernet Cables

iControl junction boxes and control panels containing Ethernet devices are equipped with T568-B Ethernet termination modules and 2-foot T568-B patch cords. To connect the termination modules to the Ethernet cables coming from the network junction box, you will need a cable jacket stripper, a 110 punch-down tool, and a diagonal cutter.

- cable jacket stripper
- 110 punch-down tool
- diagonal wire cutter

See Figure 3-9.

1. Remove the surface mount box and termination module from the junction box.
2. Remove the cover and bezel from the surface-mount adapter. Use a small flat screwdriver to remove the old-style cover; squeeze the clips on each side of the new-style cover to remove it.
3. Remove the cable entry knockout from the cover.
4. Strip back the cable jacket no less than 50 mm (2 in.). Do not strip the wire insulation.
5. Keeping each pair twisted together, lay the wires one at a time into the module slots and punch them down, using the B color code as shown in the illustrations.

NOTE: A minimum of 6.4 mm ($^1/_4$ in.) of wire must extend beyond the module slot to ensure a good connection.

6. Clip off the ends of the wires close to the termination module so the ends of the wires cannot contact each other.
7. **Side-connect modules:** Slide the termination module into the adapter, then install the bezel onto the adapter.
   Rear-connect modules: Snap the termination module into the bezel, then install the bezel onto the adapter.
8. Secure the cable to the adapter with a cable tie.
9. Snap the adapter cover into place.
10. Locate the assembled surface mount box close enough to the fieldbus device to make the patch cable connection. Secure the adapter to the junction box with the included piece of two-sided adhesive tape.

Connecting Termination Modules to Ethernet Cables *(contd)*

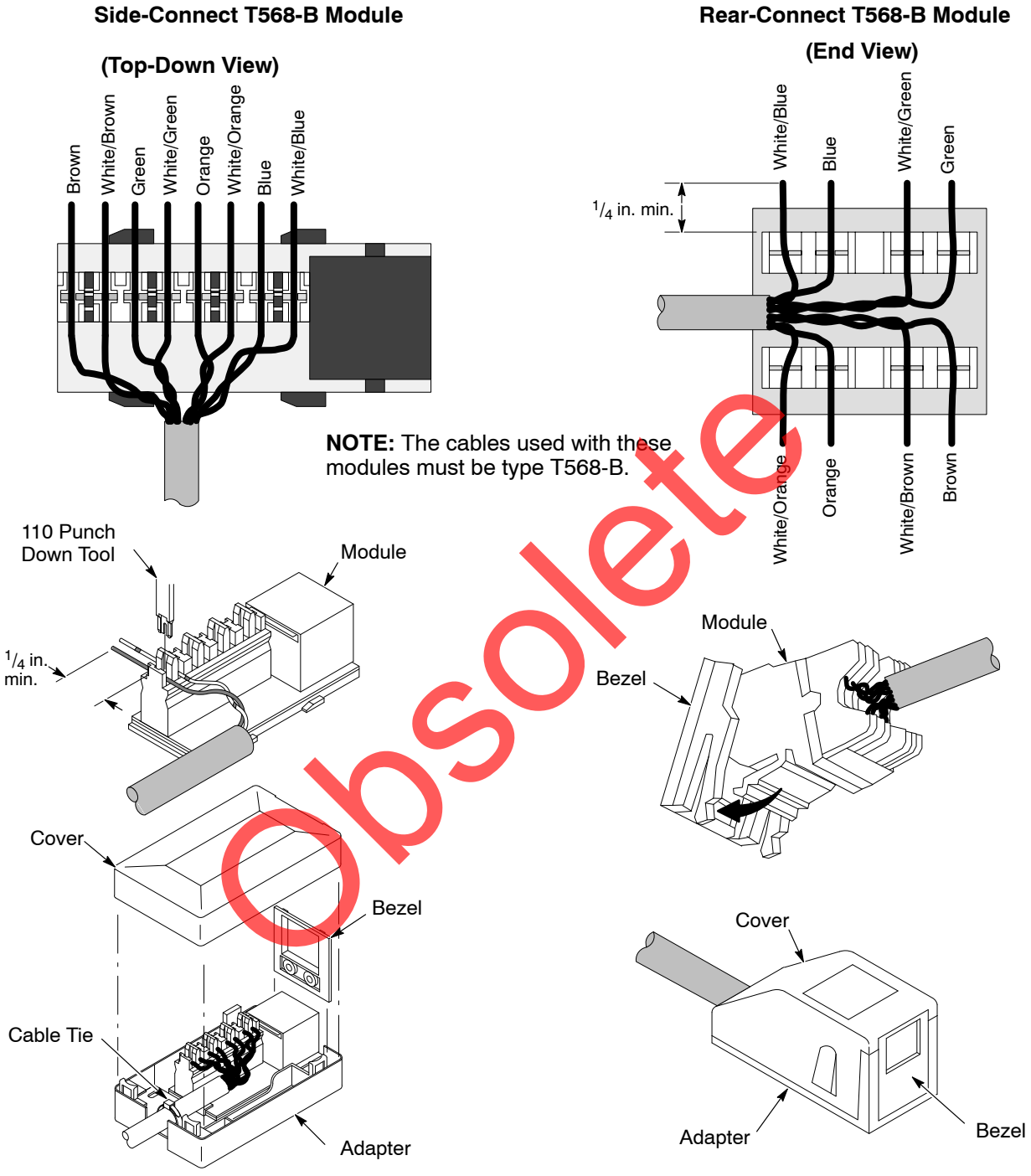


Figure 3-9 Connecting Ethernet Termination Modules to Ethernet Cable

Ethernet Termination Standards

Either T568-B or T568-A cables will work in the iControl system. Use the wiring diagrams in Figure 3-10 when terminating Ethernet cables. Make sure each end of the cable is terminated using the same type of plug and wiring arrangement.

Type T568-B Wiring Diagram

Pin	Color
1	Orange/White
2	Orange
3	Green/White
4	Blue
5	Blue/White
6	Green
7	Brown/White
8	Brown

Type T568-A Wiring Diagram

Pin	Color
1	Green/White
2	Green
3	Orange/White
4	Blue
5	Blue/White
6	Orange
7	Brown/White
8	Brown

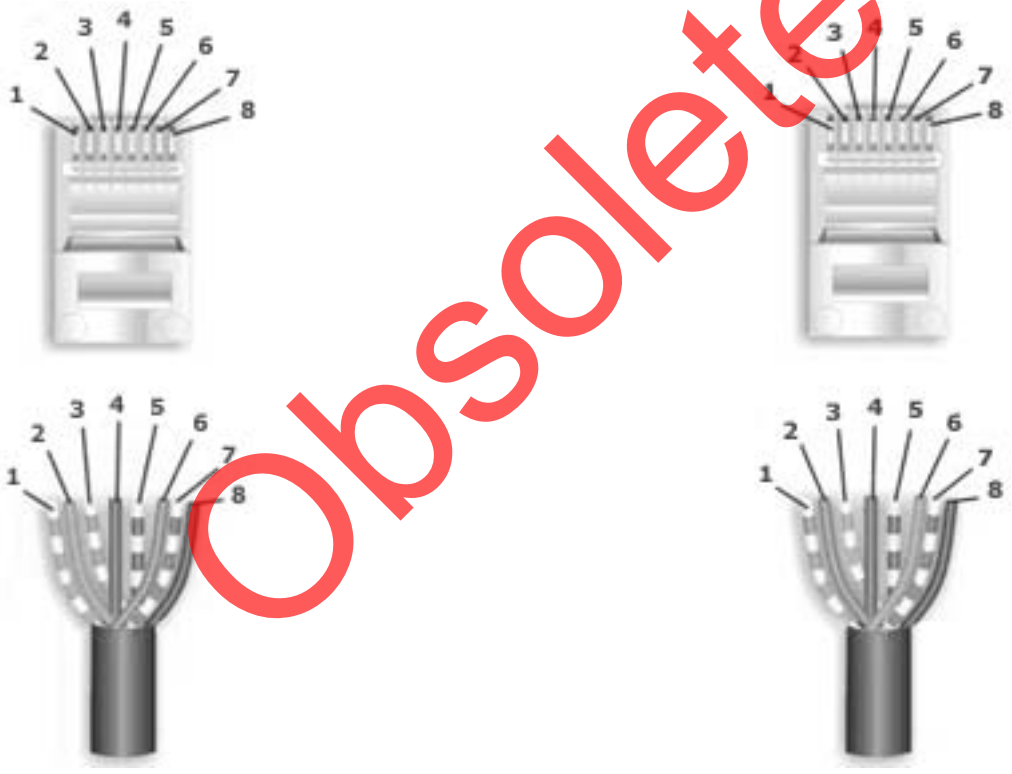


Figure 3-10 Ethernet Termination Standards

Gun Cable and Feed Tubing Connections

See Figure 3-11. Connect the automatic gun cables to the receptacles on the bottom rear panel of the iControl console. Connect gun 1 cable to receptacle 1, gun 2 cable to receptacle 2, and so on.

Connect the 8-mm powder feed tubing from the spray guns to the HDLV pump outlet fittings as described in the pump panel manual.

Connect the pattern air tubing from the spray guns to the pump panel outlet fittings next to the pumps.

Odd Number of Guns

iControl systems are sold configured for an even number of guns. Each gun controller card in the console controls two guns. If you configure the system for an odd number of guns, the fault LED on the card with only one gun connected will light.

NOTE: The unused gun must be the highest even-number gun. For example, if you have an 8-gun system, then number 8 must be the unused gun. The gun card receptacles are labeled on the circuit boards as A (odd number gun) and B (even number gun).

Included in the bag with the console keys is a seal and jumper. The jumper will disable the gun not detected fault LED on the gun card.

Cap the unused cable receptacle with the bulkhead seal, then open the console door and unplug the receptacle harness from the gun card. Install the jumper in the card receptacle.

Refer to the Parts section for seal and jumper part numbers.

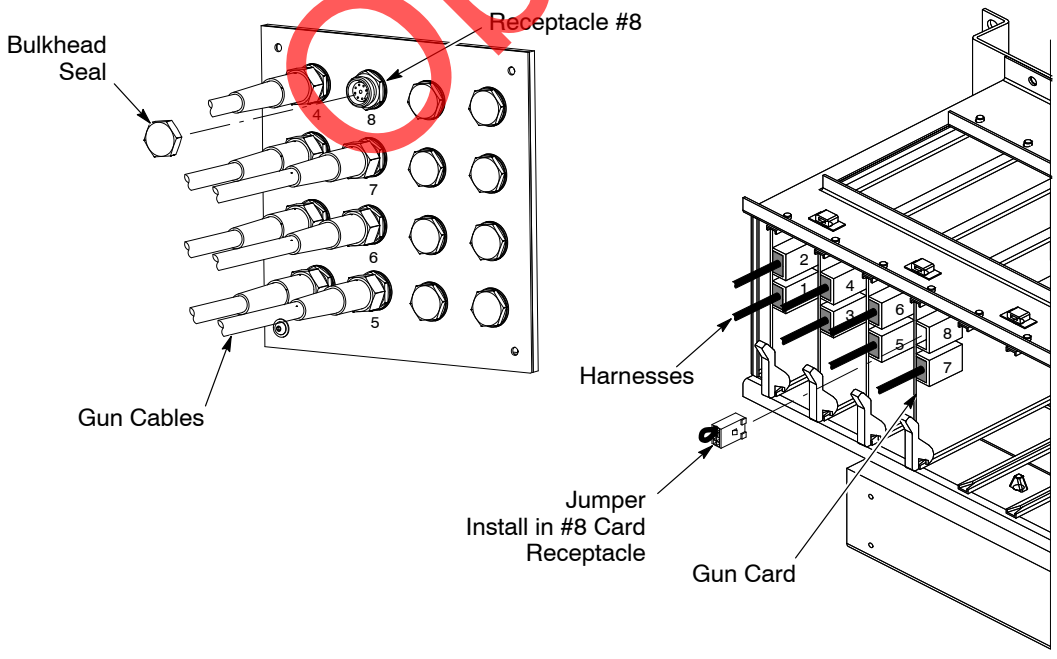


Figure 3-11 Seal and Jumper Installation – Example Showing 8 Gun System 7 Guns

Program and User Data Cards

The iControl program and configuration data is stored on one 512 Mb Compact Flash card. All user data and preset settings are stored on another 512 Mb CompactFlash card. These cards function as removable hard drives. The iControl consoles are shipped with these cards installed.

CAUTION: The Compact Flash cards CANNOT be hot-swapped. Shut down the iControl program and operating system, then turn off the iControl console before removing the cards. Removing the cards while power is on could corrupt the data on the cards and damage the cards.

CAUTION: Never turn off console power without first shutting down the iControl program and operating system. Doing so could corrupt the system software. Refer to *Program Shutdown* in the *iControl Operator Interface* manual for the shutdown procedure.

See Figure 3-12. The CompactFlash card slots are on the back on the PC. The top card (1) is the data card; the bottom card (2) is the program card.

NOTE: To remove a card, simply pull it out of the slot.

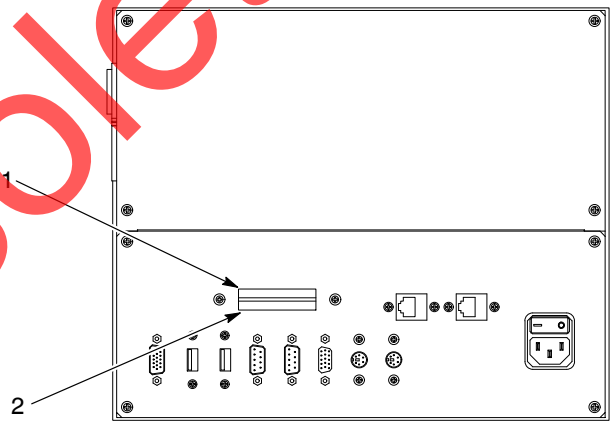


Figure 3-12 User Data and Program Card Locations

1. Data card
2. Program card

The iControl program can be updated by installing a new program card.

In addition to the configuration data, up to 255 presets per gun can be stored on each data card. To copy a data card to a blank card, use the Data Backup function. Refer to *Data Backup* in the *iControl Operator Interface* manual for instructions.

NOTE: Not all CompactFlash cards are the same. For approved cards, order the cards listed in the parts section, or contact your Nordson controls engineer or Nordson Technical Support.

Touch Screen Calibration

The touch screen is calibrated at the factory before the system is shipped. The touch screen calibration values are stored on the program card. If you install a new program card that has never been used before, there will be no calibration file on the card. The system will automatically start the calibration procedure.

Follow the calibration instructions on the screen exactly, using your finger to touch the targets. When you have completed the calibration procedure, touch the **iControl** button to start the iControl software.

Refer to *Troubleshooting* for a complete description of the calibration procedure and instructions on calibration.

System Upgrades

Parts requirements for system upgrades depend on your existing system configuration. Contact your Nordson representative for help in ordering and installing upgrades.

Section 4
Troubleshooting

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

CAUTION: Do not turn off console power without first performing a program shutdown. Doing so could corrupt the iControl program and operating system on the program card. Refer to *Program Shutdown* in the *Configuration* section of the *iControl Operator Interface* manual for the shutdown procedure.

NOTE: If the troubleshooting procedures in this section do not solve your problem, contact the Nordson Finishing Customer Support Center at (800) 433–9319 or your local Nordson representative.

Error Codes and Alarm Messages

Table 4-1 Error Codes and Messages

Code	Message Text	Description	Refer to Page
NA = Not currently applicable * – Code may differ on early software releases			
10x	**CAN and Node State**		
101	CAN bus fault detected	N/A	4-6
102	CAN receive buffer overflow	Host CAN interface receive too much data and could not process it quickly enough	4-6
103	Message timeout	Remote CAN device did not respond to a direct response in the alloted time.	4-6
104	Went offline	Remote CAN device is no longer online	4-6
105	Returned to online	Remote CAN device returned to service	4-6
106	Communication error	Host CAN interface detected a communication error	
107	BUS–OFF	255 bad CAN messages received	
108	Warning Limit exceeded	127 bad CAN messages received	
109	Bit error	Dominant bit not detected in 5 data bits	
110	Form error	Fixed format data field contains illegal bits	
111	Stuffing error	Recessive bit not detected in 5 data bits	

Continued...

Code	Message Text	Description	Refer to Page
112	Other error	Other errors not listed as Bit, Stuff, or Form	
113	CAN Transmit Buffer overflow	Host CAN interface did not transmit data quickly enough	
20x	**Application**		
201	Conveyor input not detected	Not implemented, future release	
202	Encoder not detected	Not implemented, future release	
203	Zone photoeye stuck on	Not implemented, future release	
204	Flag photoeye stuck on	Not implemented, future release	
205	Application setup	Not implemented, future release	
206	System in lockout	Not implemented, future release	
30x	**Electrostatic Controller (Gun Card)**		
301	Micro–Amp fault detected	Microamp value out of range.	4-7
302	Foldback fault detected	Current foldback detected.	4-7
303	Feedback fault detected	Microamp feedback detected.	4-7
304	Open circuit detected	No multiplier load detected.	4-7
305	Short circuit detected	Multiplier drive circuit shorted.	4-7
306	Internal hardware fault detected	Internal DSP fault.	4-8
307	Tribo	Tribomatic gun current feedback low.	4-8
308	Gun not detected	Gun not connected to system.	4-8
5xx	**Remote Device Node**		
Electrostatic Node (Gun Card)			
531	System Heartbeat lost	Remote device lost heartbeat message.	4-8
532	5/24 Volt power	Remote device power detection failure.	4-8
533	Error writing to internal EEPROM	Error saving data to remote device onboard EEPROM.	4-8
534	Error reading from internal EEPROM	Error reading data from remote device onboard EEPROM.	4-8
535	Node address changed from last powerup	The saved address does not match the current address for the remote device. Sending a reset command will clear this state.	4-8
536	Internal database version changed – resetting to defaults	An update to the database was detected and the current data is no longer valid.	4-8
537	Preset out of range	The preset sent to the remote device was out of range.	4-8
538	Trigger ON message received – controller in lockout	Remote device was commanded to trigger while in lockout.	4-8

Continued...

Code	Message Text	Description	Refer to Page
Prodigy Pump Node			
571	System Heartbeat lost	Remote device lost heartbeat message.	4-11
572	5/24 Volt power	Remote device power detection failure.	4-11
573	Error writing to internal EEPROM	Error saving data to remote device onboard EEPROM.	4-11
574	Error reading from internal EEPROM	Error reading data from remote device onboard EEPROM.	4-11
575	Node address changed from last powerup	The saved address does not match the current address for the remote device. Sending a reset command will clear this state.	4-11
576	Internal database version changed – resetting to defaults	An update to the database was detected and the current data is no longer valid.	4-11
577	EEPROM validation error*	EEPROM data not valid.	4-11
70x	**Prodigy Pump Controller**		
701	Pattern servo fault	The solenoid resistance was not detected or incorrect when the device was not triggered.	4-11
702	Pump servo fault	The solenoid resistance was not detected or incorrect when the device was not triggered.	4-11
703	UNDEFINED ERROR1		4-11
704	UNDEFINED ERROR2		4-11
705	Powder low PWM	Air flow less than commanded value.	4-11
706	Pattern low PWM	Air flow less than commanded value.	4-11
707	Powder high PWM	Air flow more than commanded value.	4-12
708	Pattern high PWM	Air flow more than commanded value.	4-12
80x	**User Interface**		
801	Backup operation failure*	Not implemented, future release	
802	Database compare failure*	Not implemented, future release	
803	Copy program failed to start*	Not implemented, future release	
804	Compare program failed to start*	Not implemented, future release	
805	Gun trigger error*	Not implemented, future release	
806	Flow/pump trigger error*	Not implemented, future release	

Continued...

Code	Message Text	Description	Refer to Page
90x	**Ethernet Networking**		
901	I/O error	Ethernet I/O communication failure.	4-14
902	POrt or socket open error	The Ethernet connection failed to open for service.	4-14
903	Serial port already open	The Ethernet connection is already open and received an open command.	4-14
904	TCP/IP connection error	Unable to connect to remote device.	4-14
905	TCP/IP connection was closed by remote peer	Remote device closed the I/O connection.	4-14
906	Socket library error	The socket library returned error status.	4-14
907	TCP Port already bound	Requested TCP port is in use by another application.	4-14
908	Listen failed	The local system cannot detect activity on the Ethernet network.	4-14
909	File descriptors exceeded	Too many connections are open.	4-15
910	No permission to access serial or TCP port	The program requesting the Ethernet resource does not have permission to do so.	4-15
911	TCP Port not available	The requested port is busy or otherwise not available.	4-15
917	Checksum error	Data packets were received with errors.	4-15
918	Invalid frame error	Data packets were received with errors.	4-15
919	Invalid reply error	Data packets were received with errors.	4-15
920	Reply time-out	A reply to a request was not received in time.	4-15
921	Modbus exception response	An illegal Modbus command was detected.	4-15
925	Illegal Function exception response	An illegal function call was detected.	4-15
926	Illegal Data Address exception response	An illegal address was detected.	4-15
927	Illegal Data Value exception response	An illegal data value was detected.	4-15
928	Slave Device Failure exception response	The slave device returned an exception.	4-15
100x, 110x	**Positioner**		
1001	E-Stop OPEN	The E-Stop circuit is open.	4-17
1002	Encoder failure	The encoder is not responding when motion is commanded or is responding with defective signals.	4-17
1003	Motor Protector	The motor protector is open.	4-18
1004	Motion Controller	The motion controller indicates a failure.	4-18
1005	Forward Contactor	The forward contactor did not engage.	4-18
1006	Reverse Contactor	The reverse contactor did not engage.	4-18
1007	Forward End of Travel Limit	The machine is at the forward end of travel limit.	4-19

Continued...

Code	Message Text	Description	Refer to Page
1008	Reverse End of Travel Limit	The machine is at the reverse end of travel limit.	4-19
1112	Positioner not in ready state for Color Change	The positioner has not reached the proper location for color change.	4-19
200x, 210x	**Reciprocator**		
2001	E-Stop Open	The E-Stop circuit is open.	4-24
2002	Encoder failure	The encoder is not responding when motion is commanded or is responding with defective signals.	4-24
2003	Motor Protector	The motor protector is open.	4-25
2004	Motion Controller	The motion controller indicates a failure.	4-25
2005	Forward Contactor	The forward contactor did not engage.	4-25
2006	Reverse Contactor	The reverse contactor did not engage.	4-25
2007	Forward End of Travel Limit	The machine is at the forward end of travel limit.	4-26
2008	Reverse End of Travel Limit	The machine is at the reverse end of travel limit.	4-26
2101	Part size less than minimum	The part detected is too small. The reciprocator will attempt to stroke at the minimum length.	4-26
2102	Lead gun not defined – using gun 1	The lead gun on the reciprocator is not defined.	4-26
2103	Trail gun not defined – using gun 1	The trailing gun on the reciprocator is not defined.	4-26
2104	Trail gun less than lead – trail = lead	The trailing gun number is less than the lead gun number.	4-26
2105	Pattern width not set – using 12 inches (305 mm)	The pattern width has not been set using default.	4-26
2106	Vertical scanner not configured – recip mode 1 invalid	A vertical scanner is required for variable stroke operation.	4-26
2107	Speed calculated less than minimum	The speed of the reciprocator is less than the minimum value allowed.	4-27
2108	Speed calculated greater than maximum	The speed of the reciprocator is greater than the maximum value allowed.	4-27
2113	Reciprocator not in ready state for Color Change	The reciprocator is not in the proper position for color change.	4-27
300x	**Watchdog**		
3100	Positioner Watchdog fault	The remote Ethernet device did not respond with a watchdog signal in 1 second.	4-19
3200	Reciprocator Watchdog fault	The remote Ethernet device did not respond with a watchdog signal in 1 second.	4-27

Continued...

Code	Message Text	Description	Refer to Page
410x	**Color Change**		
4109	Clean cycle aborted arch clean operation – waiting on park release	Clean cycle detected an abort – waiting for user to press park to release.	4-19
4110	Clean cycle aborted by user action – park release detected	Clean cycle aborted by user – part release was detected.	4-19
4111	Clean cycle aborted detected machine lockout/watchdog	A machine malfunction aborted the cleaning operation.	4-19

CAN Network Errors

Table 4-2 CAN Network Errors

Error Code	Message	Cause/Correction
101	CAN bus fault detected	Hardware error. Check the CAN cable for shorts. If the cable is good, replace the PC104 CAN card.
102	CAN receive buffer overflow	Host CAN interface received too much data and could not process it quickly enough. Reboot the system.
103	Message timeout	Remote CAN device did not respond to a direct request in the allotted time. Check the gun card or iFlow card.
104	Went offline	Normal operational message. The user will see this message if the booth exhaust fan is shut off, which removes power from gun cards, or if the gun card is disconnected, or if the iFlow module is disconnected from the CAN network.
105	Returned to online	Normal operational message. No action required.
107	Communications errors	These error messages indicate that communications on the iControl CAN bus may be having problems. Troubleshooting should include verification of all CAN cable connections and grounding, and gun cable connections and continuity. CAN errors can also be caused by individual gun cards or the iControl PC to PC104 card interface. These errors do not indicate a specific device failure as all devices are in parallel on the CAN bus.
108		
109		
110		
111		
112		
113		

Gun Card Troubleshooting

Refer to Figure 4-1 and Tables 4-3 and 4-4. Use the fault codes on the Gun Control screens, the fault messages on the Alarm screen, and the LEDs on the gun control cards to diagnose problems with the gun control cards.

Gun Card Error Codes and Fault Codes

These faults, except for E16, will activate the alarm relay.

Table 4-3 Gun Card Error and Fault Codes

Error Code	Message	Fault Code	Meaning/Correction
301	Micro–Amp fault detected	–	Microamp value out of range.
302	Foldback fault detected	E15	Current foldback detected. Unplug the cable from the gun and trigger the gun. • If the fault changes to E7, check the resistance of the multiplier as described in the gun manual. • If the fault code stays E15, check the continuity of the cable as described in the gun manual.
303	Feedback fault detected	E3	Microamp feedback not detected. Check the gun current with no parts in front of the gun. If the current is 105 µA, check for a short circuit of the current feedback wires in the gun cable: Unplug the cable from the gun and trigger the gun. • If the fault stays E3, replace the cable. • If the fault changes to E7, check the resistance of the multiplier as described in the gun manual.
304	Open circuit detected	E7	Gun cable or multiplier open circuit. If the current display is 1 µA or less, check the multiplier cable and electrode assembly for loose connections. • If the connections are secure, check the multiplier with an ohmmeter as described in the gun manual. • If the multiplier reading is acceptable, check for a defective cable as described in the gun manual.
305	Short circuit detected	E8	Gun cable or multiplier short circuit. Unplug the cable from the gun and trigger the gun. • If the fault changes to E7, check the resistance of the multiplier as described in the gun manual. • If the fault code stays E8, check the continuity of the cable as described in the gun manual.

Continued...

Error Code	Message	Fault Code	Meaning/Correction
306	Internal hardware failure	E11	Internal DSP fault in gun control card. 1. Turn off the power to the system. 2. Unplug the cable from the back of the gun. 3. Turn on the power to the system. If the fault code changes to E7 (open circuit), the card is working correctly. Check the gun multiplier. If the fault code remains at E11, replace the gun control card.
307	Tribo	E17	Tribomatic µA feedback below setpoint. Check the powder flow for poor charging. Check for moisture in the compressed air supply.
308	Gun not detected	E16	Gun not connected to system. Check the gun cable connections and make sure the gun card is seated securely into the backplane. This is a normal indication if power to cards is removed, such as when the booth exhaust fan is shut off.
531	System heartbeat lost	–	Check circuit board connections.
532	5/24 volt power	–	Check circuit board connections.
533	Error writing to internal EEPROM	–	Hardware error. Replace card.
534	Error reading to internal EEPROM	–	Hardware error. Replace card.
535	Node address changed from last power up	–	Saved address does not match current address. Address switches were changed. Informational message only.
536	Internal database version changed – resetting to defaults	–	An update to the database was detected and the current data is no longer valid. Informational message only, operation should not be affected.
537	Preset out of range	–	The preset sent to the remote device was out of range. Check preset settings and reset as required.
538	Trigger ON message received – controller in lockout	–	The card was commanded to trigger but the system is locked out. Trigger ON commands will be ignored until the system is returned to the Run state.

Gun Card LEDs

See Figure 4-1. Use the card LEDs to help diagnose problems.

Table 4-4 Gun Card LEDs

LED	Color	Function	Correction
Fault	Red	Lights when a fault is detected (communication, gun cable, RAM, or hardware).	If two guns are not connected to the card this LED will light. This could be a normal condition if you have an odd number of guns in your system. Make sure the card is seated in the backplane. Open the Alarm screen and clear all faults. Replace the card if the malfunction cannot be corrected.
Status	Green	Flashing (heartbeat) when communicating properly with system.	If the status LED is not flashing, make sure the card is seated in the backplane. Turn console power off and on. Replace the card if the other gun control cards have heartbeats.
Foldback B (even-numbered gun Foldback A (odd-numbered gun)	Yellow	Lights if over-current protection circuit triggered due to high current draw from gun drive circuit.	Refer to the corrections for Fault Code E15 in Table 4-3.
Power	Green	Light when power (5 volts) is applied to the board).	If the card has no power, make sure it is properly seated in the backplane and the locking tab is working correctly. Replace the card if the other gun control cards have power.

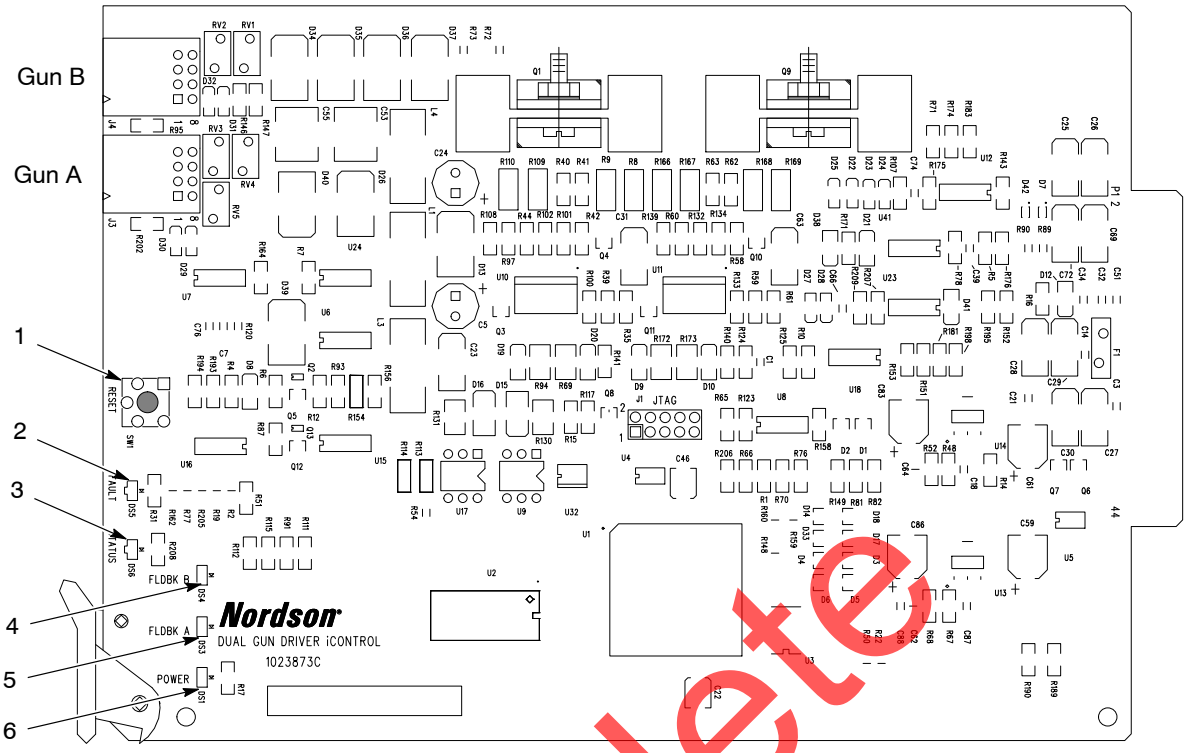


Figure 4-1 Gun Control Card LEDs and Switches

1. Reset switch (reboots the on-board processor)
2. Fault LED (red)
3. Status LED (green)
4. Foldback B LED (yellow)
5. Foldback A LED (yellow)
6. Power LED (green)

Prodigy HDLV Pump Troubleshooting

For additional troubleshooting and repair information, refer to the following manuals:

1062382 Prodigy HDLV Pump Manifold and Circuit Board
1081195 Prodigy HDLV Pump

Pump Controller Error Codes

Table 4-5 Pump Controller Error Codes

Error Code	Message	Meaning/Correction
571	System heartbeat lost	Check circuit board connections.
572	5/24 volt power	Check circuit board connections.
573	Error writing to internal EEPROM	Hardware error. Replace card.
574	Error reading to internal EEPROM	Hardware error. Replace card.
575	Node address changed from last power up	Saved address does not match current address. Address switches were changed. Informational message only.
576	Internal database version changed – resetting to defaults	An update to the database was detected and the current data is no longer valid. Informational message only, operation should not be affected.
577	Preset out of range	The preset sent to the remote device was out of range. Check preset settings and reset as required.
701	Pattern servo fault	The solenoid resistance was not detected or incorrect when the device was not triggered. When the solenoid is not energized, the resistance of the solenoid is checked by the system. These faults are generated if no resistance is detected, or the correct resistance is not detected. Check the proportional valve wiring connections. Check the solenoid operation. Replace the valve if the solenoid is bad.
702	Pump servo fault	The solenoid resistance was not detected or incorrect when the device was not triggered. When the solenoid is not energized, the resistance of the solenoid is checked by the system. These faults are generated if no resistance is detected, or the correct resistance is not detected. Check the proportional valve wiring connections. Check the solenoid operation. Replace the valve if the solenoid is bad.
705	Powder low PWM	Pump air flow less than commanded value. Check for obstruction in pump air flow control valve. Clean valve as described in pump manifold manual.
706	Pattern low PWM	Pattern air flow less than commanded value. Check for obstruction in pattern air flow control valve. Clean valve as described in pump manifold manual.

Error Code	Message	Meaning/Correction
707	Powder high PWM	Powder air flow more than commanded value. Check output of flow regulator (center regulator in pump panel) – should be 85 psi. Check for kinked or blocked powder delivery tubing. Check for blocked pump flow air servo valve.
708	Pattern high PWM	Pattern air flow more than commanded value. Check output of flow regulator (center regulator in pump panel) – should be 85 psi. Check for kinked or blocked powder delivery tubing. Check for blocked pattern flow air servo valve.

Air Flow Re-Zero Procedure

Perform this procedure if the iControl gun control screens are indicating pattern air flow when a spray gun is off and no air is actually flowing. This procedure re-zeros the pump control cards to eliminate false air flow indications.

Before performing a re-zero procedure:

- Make sure the air pressure being supplied to the pump cabinet is higher than the minimum 5.86 bar (85 psi).
- Each pump circuit board in the pump cabinet controls two pumps and the pattern air for two spray guns. Make sure no air is flowing through the pumps, around the pump control manifold gaskets, or from around any of the solenoid valves on the manifold. Re-zeroing boards when leaks are present in the control manifolds will result in additional errors.

Re-Zero Procedure

See Figure 4-2. For each pump board that is being re-zeroed:

1. Disconnect the pattern air tubing controlled by the pump board from the output fittings on the rear panel of the pump cabinet.
2. Plug the output fittings.
3. Record the board number and address settings of SW1 for each pump board.
4. Set each address switch to zero.
5. Turn off the power to the pump cabinet, wait 5 seconds, then turn the power back on.
6. Press and hold the TEST button on each pump board until the red fault light turns on. Release the TEST button and wait for the red fault light to turn off.

7. Move the SW1 address switches back to their original positions.
8. Turn off the power to the pump cabinet, wait 5 seconds, then turn the power back on.
9. Remove the plugs from the pattern air output fittings and re-connect the pattern air tubing.
10. At the iControl console, check each gun control screen that was previously indicating air flow when the gun was off. No air flow should be indicated.

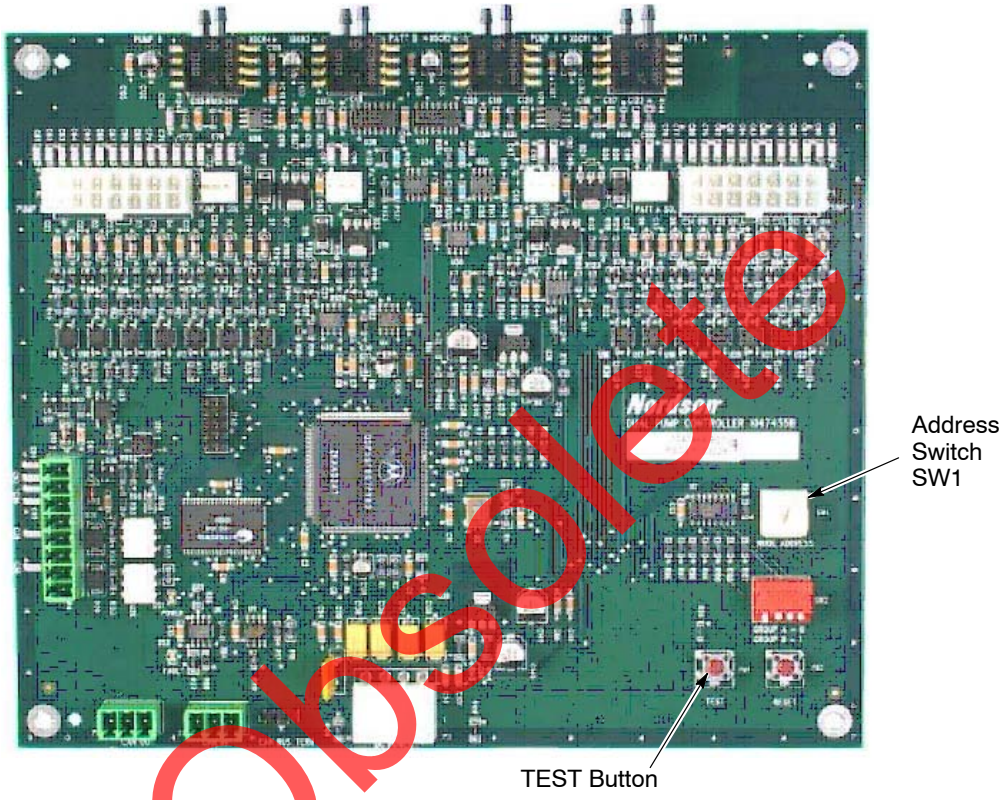


Figure 4-2 Dual Pump Control Board

Remote I/O (Ethernet) Network Troubleshooting

All Remote I/O Network faults will activate the alarm relay. Use the fault messages on the Alarm screen along with this table to diagnose and correct Ethernet network problems. You can also use the Network Status and Node Configuration screens, and the Remote Node Troubleshooting tables on page 4-32 to diagnose problems with the remote nodes.

Table 4-6 Ethernet Network Troubleshooting

Error Code	Message/Condition	Correction
901	I/O error	Check Ethernet wiring. Remote node could be disconnected from network or turned off.
902	Port or socket open error	Programming error. Contact Nordson technical support.
903	Serial port already open	Programming error. Contact Nordson technical support.
904	TCP/IP connection error	Check Ethernet wiring. Remote node could be disconnected from network or turned off.
905	TCP/IP Connection closed by remote peer fault (any remote node fault)	Ethernet network communication with the remote node has been lost. This fault may be a normal response to removing electrical power from the remote node. If the remote node is an in/out positioner or reciprocator and communication is lost while operating in Auto mode, the machine will move to the Park position. Check the Network Node Status screen. If communication is lost the node icon should turn red. If no nodes are red, check the Network Node Configuration screen to find the device associated with the faulted node IP address. **If multiple node faults are displayed:** Check the electrical power supply to all faulted nodes. Check the Ethernet switch in the network interface box for electrical power and proper operation. The switch power LED should be lit and the network connection LEDs should be flashing. Replace the switch if necessary. Check the network cable and connections between the Ethernet switch and the iControl console. Refer to *Testing Ethernet Cables* in this section. Check the Ethernet card on the iControl PC for proper operation. The ACT LED indicates network traffic when lit. The LNK LED to the right of the RJ45 connector indicates network status (green: 10 Mbs, amber: 100 Mbs, off: no connection). Replace the card if necessary, using only an identical or Nordson supplied replacement. **If a single node fault is displayed:** Check the electrical power to the remote node controller or coupler. Check network cables and connections between the remote node and the Ethernet switch (in the network interface box). Refer to *Testing Ethernet Cables* in this section.
906	Socket library error	Programming error. Contact Nordson technical support.

Continued...

Error Code	Message/Condition	Correction
907	TCP port already bound	Programming error. Contact Nordson technical support.
908	Listen failed	Programming error. Contact Nordson technical support.
909	File descriptors exceeded	Programming error. Contact Nordson technical support.
910	No permission to access serial or TCP port	Programming error. Contact Nordson technical support.
911	TCP port not available	Programming error. Contact Nordson technical support.
917	Checksum error	Noise in network. Check for loose connections or Ethernet cables routed parallel to high voltage or VFDs.
918	Invalid frame error	Noise in network. Check for loose connections or Ethernet cables routed parallel to high voltage or VFDs.
919	Invalid reply error	Noise in network. Check for loose connections or Ethernet cables routed parallel to high voltage or VFDs.
920	Reply time-out	Noise in network. Check for loose connections or Ethernet cables routed parallel to high voltage or VFDs.
921	Modbus exception response	Programming error or remote hardware error. Check Fieldbus controller functions. Refer to Remote Node Troubleshooting in this section.
925	Illegal Function exception response	Programming error or remote hardware error. Check Fieldbus controller functions. Refer to Remote Node Troubleshooting in this section.
926	Illegal Data Address exception response	Programming error or remote hardware error. Check Fieldbus controller functions. Refer to Remote Node Troubleshooting in this section.
927	Illegal Data Value exception response	Programming error or remote hardware error. Check Fieldbus controller functions. Refer to Remote Node Troubleshooting in this section.
928	Slave Device Failure exception response	Programming error or remote hardware error. Check Fieldbus controller functions. Refer to Remote Node Troubleshooting in this section.
–	Watchdog Fault (any remote node controller fault)	Control program in remote node controller is not running, or controller has no program installed. **NOTE:** This fault may be a normal response to removing electrical power from the remote node. Check the remote node controller mode selection switch. The switch should be in the run (up) position. Replace the remote node controller. The replacement must be pre-programmed or a program must be downloaded and installed in the field. Contact Nordson Finishing Customer Support for details.
–	Operation was successful	Normal operation. No action required.
–	Illegal argument error	Programming error. Contact Nordson technical support.
–	Illegal state error	Programming error. Contact Nordson technical support.

Continued...

Error Code	Message/Condition	Correction
–	Evaluation expired	Programming error. Contact Nordson technical support.
–	I/O error class	Programming error. Contact Nordson technical support.
	Fieldbus protocol error class	Programming error. Contact Nordson technical support.

In/Out Positioner Troubleshooting

Use the fault messages on the Alarm screen with this table to diagnose and correct in/out positioner or reciprocator problems. Refer to Remote I/O Network Troubleshooting on page 4-14 if the fault messages indicate a communications problem (Watchdog fault or TCP/IP communications fault).

Each fault message displayed on the iControl screen is accompanied by a device and number identifier. The identifier indicates the faulted machine (for example, In/Out Positioner #1, Reciprocator #2). When the fault condition is corrected or cleared, the fault message will indicate a returned-to-normal status.

For all in/out positioner faults, the alarm relay contacts open to signal an alarm condition. You can use the alarm relay to activate an external alarm. Refer to Console Power Cable Connections in the Installation section for more information.

In/Out Positioner Error Code Troubleshooting

Table 4-7 In/Out Positioner Error Code Troubleshooting

Error Code	Message	Correction
1001	E-Stop Open	In/out positioner or reciprocator E-Stop button pressed. Determine why E-Stop button was pressed and correct if necessary. Reset E-stop button when clear to do so.
1002	Encoder Failure Fault	In/out positioner or reciprocator not moving. Mechanical, motor, or motor controller failure. Change in/out positioner or reciprocator operating mode to Manual and check for proper forward and reverse (up and down) motion. If only one direction of movement, check motor control circuits. If no motion, check the following: Check the positioner carriage to make sure it moves properly. Make sure that • the anti-tip device is adjusted properly • a carriage wheel bearing has not failed • no obstructions are preventing motion. Check the pulleys, belts, or other mechanical link connecting the gear reducer to the gun moving carriage. If the gear reducer is not rotating but the motor is, replace the reducer. If the drive motor is not rotating, check the motor circuit protection, motor wiring, motor controller, and motor control circuits. This fault must be reset from the iControl alarm screen.

Continued...

Error Code	Message	Correction
1003	Motor Protector	Circuit protector limiting current to the in/out positioner or reciprocator motor has failed. Check mechanical components of in/out positioner for proper operation. Lubricate, repair, or replace components as needed. Check motor electrical circuit between protector and motor. Repair or replace wiring, terminals, or motor control components as needed. Reset circuit protector after corrections have been made.
1004	Motion Controller Fault	Motor speed controller “ready for operation” feedback signal has failed. Check the status display on the motor speed controller for fault indications. Status can only be displayed while power is applied. Cycling power to the controller will generally reset the fault condition. Determine the probable cause based on the controller fault status information. Correct the problem causing the fault or replace the controller if necessary.
1005	Forward Contactor	Auxiliary contact on the motor forward contactor did not close when the in/out positioner was commanded to move forward. Check forward contactor for proper operation. Repair or replace contactor as needed. Check control circuit and devices that energize the contactor for proper operation. Repair or replace components as needed. This fault must be reset from the iControl alarm screen.
1006	Reverse Contactor Fault	Auxiliary contact on the motor reverse contactor did not close when the in/out positioner was commanded to move in reverse. Check reverse contactor for proper operation. Repair or replace contactor as needed. Check control circuit and devices that energize the contactor for proper operation. Repair or replace components as needed. This fault must be reset from the iControl alarm screen.
		The in/out positioner or reciprocator position feedback encoder is not putting out pulses. **NOTE:** If an encoder fails, an in/out positioner will move to the reverse limit position. A reciprocator will stop. Check all encoder mechanical and electrical connections. Make sure the encoder is powered. Check pulse output from the encoder. Replace encoder if necessary. This fault must be reset from the iControl alarm screen.

Continued...

Error Code	Message	Correction
1007 1008	Forward or Reverse End-of-Travel Limit fault	In/out positioner color change cycle takes too long (Automatic color change system). During an automatic color change cycle the positioner is commanded to make both forward and reverse moves. This fault occurs if the positioner did not reach the limit in a set amount of time (20 seconds for forward and 75 seconds for reverse). For a 1007 Forward fault: Check for an obstruction to forward motion. Check the operation of the forward limit switch. For a 1008 Reverse fault: Check for an obstruction to reverse motion. Check the operation of the reverse limit switch. If there is no obstruction and the reverse limit switch is good, increase the motion speed slightly.
1112	Positioner not in ready state for color change Positioner code: 1112	In/out positioner not in Manual or Auto mode. Color change cycle cannot start unless in/out positioner is in Manual or Auto mode. Set in/out positioner mode to Manual or Auto.
3100	Positioner Watchdog fault	The positioner controller did not respond with a watchdog signal in 1 second. Check the Ethernet cable connections and the positioner controller.
4109	Clean cycle aborted Arch clean operation waiting on Park release (Euro color change only)	During a SpeedKing booth cleaning cycle, an in/out positioner has moved off its reverse limit switch or the limit switch has failed. All in/out positioner reverse limit switches must be engaged for iControl system to send “OK for Cleaning Arch” signal. Check in/out positioners for position, check limit switches and replace failed switch.
4110	Clean cycle aborted by user action – Park release detected (Euro color change only)	Park button touched causing color change cycle to abort. Touching the Park button to abort the color change cycle is a normal function. If the button was mistakenly touched before the cycle ended, the cycle must be restarted from the beginning.
4111	Clean cycle aborted detected machine lockout/watchdog fault (Euro color change only)	Communication with in/out positioner or reciprocator controller lost during color change cycle. Check the iControl alarm log for Watchdog or TCP/IP faults. Refer to Remote I/O Network Troubleshooting on page 4-14.

Other In/Out Positioner Troubleshooting

Table 4-8 Other In/Out Positioner Troubleshooting

Problem	Cause	Correction
No movement from in/out positioner in response to move command	A fault has occurred preventing operation.	Check the iControl alarm log. Identify the fault and review the fault troubleshooting information in this table.
	Controller configuration jumpers not in place.	Refer to in/out positioner or in/out positioner/reciprocator control panel drawings in Section 7 for function identification and jumper placement instructions.
	Configuration lockout applied to in/out positioner.	Check the In/Out Positioner control screen for the lockout indicator. Lockout is applied from the Configuration screens.
	iControl lockout applied to guns, in/out positioners, and reciprocators.	This is a normal condition unless a failure has occurred. Refer to *Photoeye, Encoder, and Interlock Troubleshooting* in this section.
	Remote disable applied to in/out positioner controller. No status display on iControl screens.	If Nordson USA ColorMax system: Disable action is applied by a remote system control panel keyswitch. In the Disable position, the keyswitch opens the disable input circuit at the in/out positioner controller. No corrective action is required unless the keyswitch Normal position does not allow motion. Refer to your system drawings for circuit details. If not Nordson USA ColorMax system: Apply jumper to force On the remote disable input. Refer to system drawings for jumper application.
No in/out positioner response when Auto mode selected	A fault has occurred preventing Auto operation.	Check iControl alarm screen. Identify the fault and correct. Review the related faults and corrections listed in this table.
	iControl in/out positioner configuration settings have not been completed.	Refer to Network Configuration and In/Out Positioner Configuration in the iControl Operator Interface manual. Make sure all required settings have been made and are correct. Refer to the in/out positioner/reciprocator control panel drawings and make sure all connections have been made correctly.

Continued...

Problem	Cause	Correction
Auto mode is selected, homing has completed, but no auto positioning response from in/out positioner	Auto hold action has been applied to the in/out positioner.	The in/out positioner is forced to the Retract position (refer to in/out positioner configuration setting). This is a normal and temporary occurrence when the iControl system does not know the status of the parts on the conveyor between the in/out positioner scanner and the in/out positioner. This condition occurs when the iControl console is powered up or rebooted and part tracking (shift register) information is lost. Auto positioning will commence when parts identified by the in/out positioner scanners arrive at the in/out positioner. Manual positioning is allowed during this period.
	Booth interlock has opened (booth exhaust fan shut down).	The booth exhaust fan has been turned off. The in/out positioner moves to the Park position (refer to in/out positioner configuration settings) if the Auto mode is selected. The in/out positioners can be operated manually while the booth fan is off.
	In/Out Positioner scanner not responding to parts passing by on the conveyor.	Conveyor encoder not sending pulses to the iControl system. Refer to *Photoeye, Encoder, and Conveyor Interlock Troubleshooting* on page 4-31. In/Out Positioner scanners not detecting parts: Check scanner input values on the Input Status screen. Refer to the *Monitoring Operation* section of the iControl Operator Interface manual. Check for scanner remote node communication failure on the Network Node Status screen and Node Configuration screens. Refer to *Remote I/O Network Troubleshooting* on page 4-14. Check for electrical power at the scanner controllers. Check for a voltage signal, 0–10 Vdc = length of scanner (0 = maximum), from the scanner controller to the analog input module. Refer to the In/Out Positioner Scanner Junction Box drawings in this manual. If a voltage signal is read at the analog input module, and there is no problem with the Ethernet network connections to the controller node, then replace the analog input module.
	In/Out Positioner preset set to Fixed.	Normal operating scenario. Position change will only occur when a new part appears at the in/out positioner.

Continued...

Problem	Cause	Correction
Auto mode is selected, in/out positioner stays at the reverse limit position	Refer to Problem "Auto mode is selected, homing has completed, but no auto positioning response from in/out positioner."	
	Park/Clean and Retract position values set too high.	Set the Park/Clean and Retract position values to less than reverse limit switch position value. If the values are greater, the in/out positioner will stop at the reverse limit switch and generate a fault condition during normal operation. **NOTE:** If the in/out positioner is an analog version, then the Reverse Limit value must equal the position at the reverse limit switch.
In/Out Positioner "jumps" back to a stop after moving to a new position	In/Out Positioner Hysteresis value too small.	Open In/Out Positioner Configuration screen and increase the Hysteresis value. The hysteresis value is the allowable over- or under-shoot distance from the target position. If the in/out positioner is within this distance of the desired position when it stops, the iControl system will not move it again to the target position. If the value is not large enough, the in/out positioner will over- or under-shoot its destination and then "jump" back to it (called hunting). A typical setting is 0.5 – 0.7 inches depending on the in/out positioner speed setting.
In/Out Positioner actual travel distance does not match value shown on iControl screens	In/Out Positioner position calibration not completed, or in/out positioner forward or reverse limit switch moved since last position calibration.	In/Out Positioner calibration involves moving the in/out positioner to a stop at the forward limit switch and then within 60 seconds moving it to the reverse limit switch. This sets zero at the forward limit switch and a reverse limit reference at the reverse limit switch. Calibration is performed during in/out positioner configuration, but can be performed at any time while in Manual mode. If the physical position of either limit switch has been changed, then positioning will be incorrect. You must recalibrate the in/out positioner if you move the limit switches. **NOTE:** The first time Auto mode is selected after in/out positioner power up, the in/out positioner moves to the reverse limit switch (home) and acquires a reverse reference value. This value is used to reset the in/out positioner position for Auto operations.

Continued...

Problem	Cause	Correction
In/Out Positioner actual travel distance does not match value shown on iControl screens *(continued)*	Incorrect encoder resolution entered on in/out positioner configuration screen.	**NOTE:** Encoder resolution can only be entered or changed by a Nordson representative. Verify encoder resolution (number of pulses output for one inch of travel) and enter that value on the in/out positioner configuration screen. If the number is not know and cannot be mechanically calculated, then a trial and error method can be attempted. Perform this procedure from the in/out positioner configuration screen: 1. Manually move the in/out positioner to the forward limit (zero position). 2. Reverse the in/out positioner slightly off the limit, record the displayed position value, and apply reference marks to the in/out positioner and base. 3. Manually move the in/out positioner in reverse, almost but not all the way to the reverse limit (the greater the distance the more accurate the calculated resolution will be). 4. Use your reference marks to measure the distance moved and compare the measured distance to the displayed position value. 5. The ratio of these two values is used to calculate a new encoder resolution. If the displayed position value is greater than the measured distance, then increase the encoder resolution. If the displayed position value is less than the measure value, then decrease the resolution.
	Mechanical failure in connection of in/out positioner encoder to machine motion.	Check the mechanical components and connections linking the encoder rotation to the movement of the in/out positioner.

Reciprocator Troubleshooting

Use the fault messages on the Alarm screen with this table to diagnose and correct reciprocator problems. Refer to Remote I/O Network Troubleshooting on page 4-14 if the fault messages indicate a communications problem (Watchdog fault or TCP/IP communications fault).

Each fault message displayed on the iControl screen is accompanied by a device and number identifier. The identifier indicates the faulted machine (for example, In/Out Positioner #1, Reciprocator #2). When the fault condition is corrected or cleared, the fault message will indicate a returned-to-normal status.

For all in/out positioner faults, the alarm relay contacts open to signal an alarm condition. You can use the alarm relay to activate an external alarm. Refer to Console Power Cable Connections in the Installation section for more information.

Reciprocator Error Code Troubleshooting

Table 4-9 Reciprocator Error Code Troubleshooting

Error Code	Message	Correction
2001	E-Stop Open	In/out positioner or reciprocator E-Stop button pressed. Determine why E-Stop button was pressed and correct if necessary. Reset E-stop button when clear to do so.
2002	Encoder Failure Fault	In/out positioner or reciprocator not moving. Mechanical, motor, or motor controller failure. Change in/out positioner or reciprocator operating mode to Manual and check for proper forward and reverse (up and down) motion. If only one direction of movement, check motor control circuits. If no motion, check the following: Check the positioner carriage to make sure it moves properly. Make sure that • the anti-tip device is adjusted properly • a carriage wheel bearing has not failed • no obstructions are preventing motion. Check the pulleys, belts, or other mechanical link connecting the gear reducer to the gun moving carriage. If the gear reducer is not rotating but the motor is, replace the reducer. If the drive motor is not rotating, check the motor circuit protection, motor wiring, motor controller, and motor control circuits. This fault must be reset from the iControl alarm screen.

Continued...

Error Code	Message	Correction
2003	Motor Protector	Circuit protector limiting current to the in/out positioner or reciprocator motor has failed. Check mechanical components of in/out positioner for proper operation. Lubricate, repair, or replace components as needed. Check motor electrical circuit between protector and motor. Repair or replace wiring, terminals, or motor control components as needed. Reset circuit protector after corrections have been made.
2004	Motion Controller Fault	Motor speed controller “ready for operation” feedback signal has failed. Check the status display on the motor speed controller for fault indications. Status can only be displayed while power is applied. Cycling power to the controller will generally reset the fault condition. Determine the probable cause based on the controller fault status information. Correct the problem causing the fault or replace the controller if necessary.
2005	Forward Contactor	Auxiliary contact on the motor forward contactor did not close when the in/out positioner was commanded to move forward. Check forward contactor for proper operation. Repair or replace contactor as needed. Check control circuit and devices that energize the contactor for proper operation. Repair or replace components as needed. This fault must be reset from the iControl alarm screen.
2006	Reverse Contactor Fault	Auxiliary contact on the motor reverse contactor did not close when the in/out positioner was commanded to move in reverse. Check reverse contactor for proper operation. Repair or replace contactor as needed. Check control circuit and devices that energize the contactor for proper operation. Repair or replace components as needed. This fault must be reset from the iControl alarm screen.
		The in/out positioner or reciprocator position feedback encoder is not putting out pulses. **NOTE:** If an encoder fails, an in/out positioner will move to the reverse limit position. A reciprocator will stop. Check all encoder mechanical and electrical connections. Make sure the encoder is powered. Check pulse output from the encoder. Replace encoder if necessary. This fault must be reset from the iControl alarm screen.

Continued...

Error Code	Message	Correction
2007 2008	Forward or Reverse End-of-Travel Limit fault	Auto mode is selected and the reciprocator has engaged the forward (upper) or reverse (lower) end-of-travel limit sensor. Select Manual mode and move the reciprocator off the limit, then re-select Auto mode. Check the configured soft top and bottom limits. Make sure they do not allow travel to the limit sensors. Adjust the configured reciprocator Turn-Around Offset (Nordson CSR only) to ensure that the limit sensors are not engaged. Check reciprocator encoder wiring. If signals switched position tracking will be reversed. Typically only seen on initial startup or if encoder is replaced. Reciprocator encoder has failed. Refer to Encoder Failure fault.
		Gun carriage has fallen to the reverse limit as a result of a mechanical failure. Check belts, pulleys, bearings, etc. for proper operation. Refer to reciprocator manual. This fault must be reset from the iControl Alarm screen.
		Gun carriage has slowly drifted or was moved to the top or bottom of stroke. Incorrect counterweight to neutralize the weight of the guns and gun carriage. Refer to reciprocator manual. This fault must be reset from the iControl Alarm screen.
2101	Part size less than minimum	Default or preset settings define a stroke length less than the minimum 4 in. Change default or preset settings, or if parts are small consider turning off reciprocators for batch.
2102	Lead gun not defined – using gun 1	Lead gun number not entered in reciprocator configuration. Enter number for lead gun in reciprocator configuration.
2103	Trail gun not defined – using gun 1	Trail gun number not entered in reciprocator configuration. Enter number for trail gun in reciprocator configuration.
2104	Trail gun less than lead – trail = lead	Lead and trail gun numbers not entered correctly in reciprocator configuration. Correct gun number entries in reciprocator configuration. Lead gun number must be lower than trail gun number.
2105	Pattern width not set – using 12 inches	No value for pattern width entered in reciprocator configuration. Enter value for pattern width in reciprocator configuration.
2106	Vertical scanner not configured – reciprocator mode 1 invalid	Reciprocator set for variable stroke mode, no part size data available. A part size, as seen by a vertical scanner or customer PLC, is required for variable mode. If no part size data is available, set reciprocator to a fixed mode.

Continued...

Error Code	Message	Correction
2107	Speed calculated less than minimum	Default or preset settings for variable mode resulting in speed less than minimum. Minimum speed is 15 ft/min. Change default or preset settings. Part may be too small to use variable mode, change to a fixed mode.
2108	Speed calculated greater than maximum	Default or preset settings for variable mode or fixed with conveyor synchronization resulting in speed faster than maximum. Change the default or preset settings or reduce the conveyor speed.
1112	Positioner not in ready state for color change	In/out positioner not in Manual or Auto mode. Color change cycle cannot start unless in/out positioner is in Manual or Auto mode. Set in/out positioner mode to Manual or Auto.
2113	Reciprocator not in ready state for color change	Reciprocator not in Auto mode. Color change cycle cannot start unless reciprocator is in Auto mode. Set reciprocator mode to Auto.
3200	Reciprocator Watchdog fault	The reciprocator controller did not respond with a watchdog signal in 1 second. Check the Ethernet cable connections and the reciprocator controller.

Other Reciprocator Troubleshooting

Table 4-10 Other Reciprocator Troubleshooting

Problem	Cause	Correction
No movement from reciprocator in response to move command	A fault has occurred preventing operation.	Check the iControl alarm log. Identify the fault and review the fault troubleshooting information in this table.
	Controller configuration jumpers not in place.	Refer to in/out positioner/reciprocator control panel drawings in Section 7 for function identification and jumper placement instructions.
	Configuration lockout applied to reciprocator.	Check the Reciprocator control screen for the lockout indicator. Lockout is applied from the Configuration screens.
	iControl lockout applied to guns, in/out positioners, and reciprocators.	This is a normal condition unless a failure has occurred. Refer to *Photoeye, Encoder, and Interlock Troubleshooting* in this section.

Continued...

Problem	Cause	Correction
No movement from reciprocator in response to move command *(continued)*	Remote disable applied to reciprocator controller. No status display on iControl screens.	If Nordson USA ColorMax system: Disable action is applied by a remote system control panel keyswitch. In the Disable position, the keyswitch opens the disable input circuit at the controller. No corrective action is required unless the keyswitch Normal position does not allow motion. Refer to your system drawings for circuit details. If not Nordson USA ColorMax system: Apply jumper to force On the remote disable input. Refer to system drawings for jumper application.
No reciprocator response when Auto mode selected	A fault has occurred preventing Auto operation.	Check iControl alarm screen. Identify the fault and correct. Review the related faults and corrections listed in this table.
	iControl reciprocator configuration settings have not been completed.	Refer to *Network Configuration* and *Reciprocator Configuration* in the iControl Operator Interface manual. Make sure all required settings have been made and are correct. Refer to the in/out positioner/reciprocator control panel drawings in Section 7 of this manual and make sure all connections have been made correctly.
Reciprocator changes direction before or after the programmed turn-around position in Auto mode	Turn-around offset not set correctly.	An error close to $\pm\ ^1/_2$ in. of the set turn-around position is normal. Before making adjustments to the offset setting, make sure the encoder resolution is correct. Refer to *Reciprocator Configuration* in the iControl Operator Interface manual.
	Incorrect reciprocator encoder resolution entered.	The accuracy of the displayed position versus the actual position of the reciprocator is determined by the configured encoder resolution. Check the encoder resolution value.
Reciprocator does not display 0.0 position after the homing process	Reciprocator has overtraveled the position slightly before coming to a stop	This is normal. The position displayed after homing is the actual position. During homing, the 0.0 position is set at the forward limit, then the reciprocator moves down 1 inch before stopping. The stop action produces the overtravel.

Continued...

Problem	Cause	Correction
Reciprocator measured travel position does not match the value shown on the reciprocator control panel or configuration screen	Reciprocator not homed.	Touch the Home button and wait for the homing sequence to finish, then check the position accuracy. The displayed position will not be correct until the reciprocator is homed.
	Incorrect reciprocator encoder value entered.	The accuracy of the displayed position versus the actual position of the reciprocator is determined by the configured encoder resolution. Check the encoder resolution value.
	Belt drive sprocket slipping.	Make sure the drive belt sprocket is securely connected to the gear reducer output shaft.
Reciprocator does not move in response to move command	Refer to condition “No movement from reciprocator in response to move command.”	
	Mechanical failure, drive belt not engaging drive sprocket, or drive sprocket slipping.	The position value changes but the reciprocator does not move. This can occur because the encoder is connected directly to the gear reducer output shaft. Check the drive belt and sprocket.
	Incorrect reciprocator speed controller parameters.	Speed controller parameters must be set to specified values in order to respond correctly to signals from reciprocator controller. Refer to the In/Out Positioner/Reciprocator Control Panel drawings in Section 7 of this manual.
No reciprocator response when Auto mode selected	Refer to condition “No reciprocator response when Auto mode selected.”	
	Auto cycle delay in progress	A 5 second delay occurs when Auto mode is selected. During the delay a warning beeper should sound.
	An end-of-travel limit switch is engaged.	Check the iControl Alarm log. Identify the fault and review the fault troubleshooting information.
	Invalid reciprocator stroke settings.	Speed controller parameters must be set to accept commands from the reciprocator controller. Refer to the in/out positioner/reciprocator control panel drawings in Section 7 of this manual.
Reciprocator “jumps” back to a stop after moving to a new position	Reciprocator Hysteresis value too small.	Open the Reciprocator Configuration screen and increase the Hysteresis value. The hysteresis value is the allowable over- or under-shoot distance from the target position. If the reciprocator is within this distance of the desired position when it stops, the iControl system will not move it again to the target position. If the value is not large enough, the reciprocator will over- or under-shoot its destination and then “jump” back to it (called hunting). A typical setting is 0.5 – 0.7 inches depending on the reciprocator speed setting.

Other Fault Messages and Conditions

Table 4-11 Other Fault Messages and Conditions

Message or Condition	Cause/Correction
Message: Too many (few) control nodes found	Number of gun cards/pump cards does not match number of guns setting in Guns Configuration screen (System Configuration). This could be a normal condition if you have an odd number of guns in your system. The red Fault LED on the gun card will light if two guns are not connected to the card.
Message: Gun not detected	Check gun cable connections. If cables are all connected properly, open iControl enclosure door and check gun control card connections. This could be a normal condition if you have an odd number of guns in your system.
Message: Failure reading database	No data or configuration displays on screens. User data card missing, defective, or wrong size. Replace card. Compact Flash adapter failure. Replace adapter.
Condition: iControl screen partially boots up. Screen is blank except for possible text display, or screen displays “Hit ESC for .altboot...”	Program card is missing, blank, or defective. Replace card. Program card in wrong adapter slot. Insert program card in outer slot. Compact Flash adapter failure. Replace adapter. No power to Compact Flash adapter. Check power cable and connection to adapter. Check ribbon cable connections to Compact Flash adapter and PC. Replace ribbon cable if necessary. (Standard 40-pin IDE cable, not available from Nordson.)
Condition: Pickoff value is reset to smaller number after entry	The maximum pickoff length is 4096 inches (104038.4 mm). With the keypad you can enter a number larger than the maximum, but when you save your entry the value will be automatically reduced to the maximum value.
Condition: Inconsistent lead and lag timing for auto gun triggering or moving	Conveyor encoder pulse rate is too fast. Maximum is 10 Hz (10 pulses/second). Some pulses are not being detected. Reduce the conveyor speed or change the encoder-to-conveyor linkage to reduce the pulse frequency.
Condition: Lockout message does not display when keyswitch turned to lockout position, or lockout cannot be canceled by turning keyswitch to another position	Booth exhaust fan is off (turning off switched power to the console), or remote lockout is on. If the exhaust fan is turned off before turning the switch to Lockout, then lockout cannot be activated. If the fan is turned off after the switch is turned to Lockout, then lockout cannot be canceled. Turn fan on to correct. If the remote lockout is on, turn it off. Remote lockout is activated by a customer-supplied switching device connected to the remote lockout relay in the console.
Condition: iControl screen is locked up (no response)	Cycle console power. If condition persists, program card is corrupted. Obtain and install another program card. Refer to Touch Screen Calibration when installing new program cards.

Photoeye, Encoder, and Interlock Troubleshooting

Use the I/O board LEDs and the relay LEDs in the master console to troubleshoot problems with the photoeye, encoder, interlock, and alarm circuits.

Table 4-12 Photoeye, Encoder, and Interlock Troubleshooting

Inputs	I/O Board Terminals	Troubleshooting
Zone Photoeyes	1 – 8	Photoeyes are set for breaklight. When a part passes in front of the zone photoeyes, the LEDs for the zone photoeyes should light. If they do not, check the photoeye wiring and photoeyes.
Flag Photoeyes or scanners or Inputs from customer Part ID system	9 –16	Photoeyes and scanners are set for breaklight. When a flag passes in front of the photoeyes, the LEDs for those photoeyes blocked by the flag, or the LEDs receiving a signal from the customer part ID system should light. If they do not check the wiring and photoeyes or customer part ID system.
Encoder	20	The LED should flash at the same rate as the encoder signal. If it is not flashing when the conveyor is moving check the encoder wiring and encoder.
Conveyor Interlock	24	The LED should light as long as the conveyor is on or the keyswitch is in the bypass position. If it is not on check the conveyor interlock wiring. Without this signal the spray guns will not be triggered.
Relays (DIN rail)	–	The conveyor interlock relay LED lights when the conveyor is running. The remote lockout relay LED is lit as long as it is receiving a signal (lockout on). The alarm relay LED stays lit until an alarm occurs, then goes out.
All	1–24	Input LEDs should indicate as described above. If none of the LEDs will turn on, then check the following screens: Zone and Part ID Inputs: Open the Input Status screen. Inputs should display as lighted indicators. Encoder: On the Main screen, if the encoder is providing a signal then the conveyor speed should be greater than zero. Conveyor Input: On the Main screen, if the conveyor is running then the conveyor indicator should be green. If the input indicators on the Main and Input Status screens are lit but the I/O board LEDs are not, then: Check the dipswitch and jumper settings on the PC104 I/O board (see Figure 7-4 for the settings). If settings are correct, replace the PC104 I/O board, ribbon cable, and I/O board. A new cable is shipped with the I/O board. **WARNING**: Always turn console power off before changing jumper and dipswitch settings on circuit boards. If ribbon cable is not keyed, make sure the colored trace in the ribbon cable is aligned with pin 1 at both connectors. If the conveyor interlock LED (24) on the I/O board is operating correctly and all or some of LEDs 1–20 are responding erratically, then check the I/O board inputs common voltage. For sinking inputs, +24 Vdc is applied to all HI terminals on the board as inputs common.

Remote Node (FieldBus Controller/Coupler) Troubleshooting

Use the following tables and the LEDs on the FieldBus devices in the in/out positioner scanner junction box and in/out positioner / reciprocator control panels for assistance in troubleshooting them. Unless instructed otherwise, contact Nordson Finishing Technical Support for assistance.

FieldBus Status

Table 4-13 FieldBus Controller Status LEDs

LED	Meaning	Troubleshooting
ON		
Green	Fieldbus initialization is correct.	Normal operation
Off	Fieldbus initialization is not correct, no function or self test.	Check the supply voltage (24V and 0V), check the IP configuration.
LINK		
Green	Link to the remote i/o network exists.	Normal operation
Off	No link to the remote i/o network.	Check Ethernet connections and cables.
TxD/RxD		
Green	Data exchange taking place.	Normal operation
Off	No data exchange.	Make sure the iControl console is powered on. Make sure the remote node has been configured by checking the Network Status screen and Node Configuration screen. Check the iControl Alarm screen for remove node fault messages.
ERROR		
Red	Error on the fieldbus.	Check wiring.
Off	No error, normal operation.	

Node Status

Table 4-14 FieldBus Controller Node Status LEDs

LED	Meaning	Troubleshooting
I/O		
Green	Fieldbus device operating normally.	Normal operation
Red	During startup: Internal bus being initialized, LED flashes fast for 1–2 seconds.	Normal operation
Red	After startup: Three consecutive flashing sequences with pauses between each indicate errors.	Refer to the fault codes, arguments, and description in Table 4-16, I/O Errors.
Orange	Failure of input or output module connected to controller.	Check I/O modules, replace if necessary.

Voltage LEDs

The two green LEDs in the FieldBus supply section display the supply voltage. The (A) LED indicates the 24 V supply; the (B) LED indicates the supply to the field side (power jumper contacts).

Table 4-15 FieldBus Controller Voltage LEDs

LED	Meaning	Troubleshooting
A		
Green	Operating voltage exists.	Normal operation
Off	No operating voltage.	Check the supply voltage (24 V and 0 V)
B		
Green	Operating voltage for power jumper contacts exists.	Normal operation
Off	No operating voltage for power jumper contacts.	Check the supply voltage (24 V and 0 V)

I/O Errors

If a fault is detected, the I/O LED blinks in three consecutive flash sequences: first a series of short flashes, then a pause, then the error code number, another pause, then the error code argument.

Table 4-16 FieldBus Controller I/O Fault LEDs

Fault Argument	Fault Description
Fault Code 1: Hardware and configuration fault	
0	EEPROM check sum fault/check sum fault in the parameter area of the flash memory.
1	Overflow of the internal buffer memory for the inline code.
2	Unknown data type.
3	Module type of the flash program memory could not be determined/is incorrect.
4	Fault when writing in the flash memory.
5	Fault when deleting in the flash memory.
6	Changed I/O module configuration determined after autoreset.
Fault Code 2: Fault in the programmed configuration	
0	Incorrect table entry.
Fault Code 3: Internal bus command fault	
0	No error argument.
Fault Code 4: Internal bus data fault	
0	Data fault on internal bus or internal bus interruption on coupler.
n* (n>0)	Internal bus interrupted after I/O module n.
Fault Code 5: Fault during register communication	
n*	Internal bus fault during register communication after I/O module n.
Fault Code 6: FieldBus specific error	
1	No reply from the BootP server.
2	Ethernet controller not recognized.
3	Invalid MAC ID.
4	TCP/IP initialization error.
Fault Code 7: I/O module not supported	
n*	I/O module at position n is not supported.
Fault Code 8: Not used	
Fault Code 9: CPU–TRAP error	
1	Illegal opcode.
2	Stack overflow.
3	Stack underflow.
4	NMI

Touch Screen Troubleshooting

Touch Screen Calibration

The touch screen is calibrated at the factory. If you change a program card, or the iControl PC, or have problems touching screen components accurately, you will have to recalibrate the screen.

Normal Calibration

NOTE: If you install a program card that was previously used on another iControl console, you MUST perform the Calibration with a Mouse procedure to calibrate the touch screen.

The touch screen calibration values are stored on the program card. If you install a new program card, one that has never been used before, there will be no calibration file on the card. The system will automatically start the calibration procedure.

Follow the calibration instructions on the screen exactly, using your finger to touch the targets. When you have completed the calibration procedure, touch the **iControl** button to start the iControl software.

You can calibrate the touch screen at any time. To start a normal calibration, start the Program Shutdown procedure. When the operating system shutdown prompt appears on the screen, touch the Cancel button, then touch the CAL button.

Problems During Calibration

If you do not follow the calibration instructions exactly: You will not be able to touch the center **Completion** button and exit the calibration procedure. If this happens, stop and wait until the procedure times out. You should then be able to repeat the procedure and complete it correctly. When you have completed the calibration procedure, touch the **iControl** button to start the iControl software.

If console power is shut off during the calibration procedure: The calibration file on the program card will be corrupted. On power up, you will not be able to touch the CAL button to start the calibration procedure. If this happens, perform the Calibration with a Mouse procedure

Calibration with a Mouse

WARNING: Do not spray powder while the console door is open. Shut off the booth exhaust fan to remove switched power from the console and prevent spray gun operation while performing this procedure. Failure to observe this warning could create a hazardous condition and could result in personal injury or property damage.

Use this procedure to recalibrate the touch screen if you cannot touch the CAL button or the buttons on the iControl screens, or if you install a program card previously used in another iControl console.

NOTE: You must shut off console power before connecting or disconnecting a mouse or keyboard from the iControl PC.

1. Turn off console power.
2. Open the iControl cabinet door and connect a mouse with a PS2 connector to the MOUSE port on left side of the iControl PC.
3. Turn on power and allow the operating system to load. The CAL button is displayed on the touch screen before the iControl software loads.
4. Use the mouse to move the cursor to the CAL button and click on it. The touch screen calibration procedure will start.

   NOTE: If you miss the CAL button, allow the iControl software to load, then, if possible, open the System Configuration screen and touch the Program Shutdown button. When the operating system shutdown prompt appears on the screen, touch the Cancel button, then touch the CAL button. If you cannot touch any buttons on the screen, then you will have to cycle console power and try again.

5. When the calibration procedure starts, USE YOUR FINGER, NOT THE MOUSE, to touch the calibration targets, following the instructions on the screen carefully. When you have completed the calibration procedure, touch the iControl button to start the iControl software.
6. Test the touch screen calibration, then perform a program shutdown, turn off console power, and disconnect the mouse.

No Touch Screen Display

Check the following:

- Check the power LED on the front bezel below the screen. If LED is not lit then PC is not powered up.
- Make sure console power switch is on.
- Open the console door and make sure the PC power switch is on.

Have an electrician check these:

- Console fuses on the DIN rail, at the incoming power terminals.
- Unswitched power connections to the fuse blocks.
- Power supply to the console.

Touch Screen Failure

WARNING: Do not spray powder with the iControl console door open unless the console opening, the door, and all externally connected devices are out of the hazardous area surrounding any opening of the spray booth. The hazardous area extends 3 feet outward from an opening and continues in a 3 foot arc from the edge of an opening. Failure to observe this warning could create a hazardous condition and could result in personal injury or property damage.

Screens Display, but Touch Function Does Not Work

If the mouse pointer on the screen does not move to wherever you touch the screen, touching buttons does not work, and the touch screen cannot be calibrated, then the touch screen has failed. You must replace the iControl PC.

Temporary Fix: Shut off console power and connect a mouse with a PS2 connector to the MOUSE port of the left side of the iControl PC. Turn on console power and allow the system to boot up. You should now be able to use the mouse to point and click on screen buttons and data fields. Replace the iControl PC as soon as possible.

No Display

If the PC has power but nothing displays on the screen, then the screen has failed. You must replace the iControl PC.

Temporary Fix: Shut off console power and connect a VGA monitor, keyboard, and mouse to the PC ports. Turn console power on. If the boot screens and iControl screens display on the VGA monitor, you can use the mouse to click on buttons and select fields and use the keyboard to enter and change values. Replace the iControl PC as soon as possible.

Rotary Knob Troubleshooting

If rotating the knob on the keypad panel does not change the selected data field value, the signal from the knob is not being received by the iControl PC. If this happens, check the wiring connections from the keypad panel to the iControl PC. If the connections are good, replace the keypad panel.

WARNING: Do not spray powder with the iControl console door open unless the console opening, the door, and all externally connected devices are out of the hazardous area surrounding any opening of the spray booth. The hazardous area extends 3 feet outward from an opening and continues in a 3 foot arc from the edge of an opening. Failure to observe this warning could create a hazardous condition and could result in personal injury or property damage.

Temporary Fix: Perform a program shutdown and turn off console power. Connect a standard PC keyboard with a PS2 connector to the KEYBOARD port on the left side of the iControl PC. Turn on power and use the numeric keys to enter values in selected data fields, or use the up and down arrow keys to change field values. Replace the keypad as soon as possible.

Testing Ethernet Cables

A typical Ethernet cable test device consists of two separate units: a main unit and a remote unit. Use the main unit alone to test patch cables and both units to test cables after pulling them through conduit and connecting them to the termination modules.

Patch cables: These are short network cables used within electrical panels to make connections between Fieldbus controllers or couplers and field-terminated cable runs. Patch cables are factory assembled with male RJ45 connectors at each end.

Cable runs: These are longer network cables that run through conduit to connect Fieldbus controllers or couplers to a common network interface device. Only one end of the cable has a male RJ45 connection. The other end must be field-terminated to a termination module.

Refer to *Ethernet Network Installation* in the *Installation* section for more information about Ethernet cables and installation.

Local Test – Patch Cables

1. Connect both male RJ45 connectors to the main unit.
2. Turn the unit on. A red LED will blink indicating a test in progress.
3. Watch the cable test LEDs. If all are green, then the cable is good. If one or more flash red, then the cable is faulty and must be replaced.

Remote Test – Cable Run

1. Connect one end of a previously tested patch cable into the termination module connected to the cable run. This provides you with two RJ45 male connectors on the cable run to connect to the test unit.
2. Plug the other end of the patch cable into the remote unit.
3. Plug the RJ45 male connector at the network interface end of the cable run into the main unit of the cable tester.
4. Turn the main unit on.
5. Watch the cable pair LEDs on the remote unit.
   - If all LEDs are green, then the cable run is good.
   - If one or more LEDs flash red, then either the termination module connections are miswired or incomplete, or the cable is faulty.

Make sure the cable connections to the termination module are correct. Check each connection. If you suspect a bad connection, you can pull the lead out of the module and punch it down again closer to the jacket.

If the termination module connections are good, then the cable is faulty and must be replaced.

Section 5
Repair

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

CAUTION: Do not turn off console power without first performing a program shutdown. Doing so could corrupt the iControl program and operating system on the program card. Refer to *Program Shutdown* in the *Configuration* section of the *iControl Operator Interface* manual for the shutdown procedure.

WARNING: Hazardous voltages exist within the iControl console. Unless power must be on to test circuits, always shut off and lock out power before opening the console to make repairs. All repairs should be made by a qualified electrician. Failure to observe this warning could result in personal injury or death.

Repair consists of removing malfunctioning components and replacing them with new ones. There are no components inside the cabinet that can be repaired by the customer.

Refer to the wiring diagrams in Section 7 for connections.

WARNING: Whenever replacing a component that interfaces with the exterior of the cabinet, such as a gun harness receptacle, make sure that the dust-tight intergrity of the cabinet is intact by installing the correct gaskets and seals. Failure to maintain the dust-tight integrity of the cabinet could invalidate agency approvals and create a hazardous condition.

Gun Control Card Removal/Installation

WARNING: Shut off console power before removing and installing gun control cards. Failure to observe this warning could result in damage to the cards, and could result in personal injury or even death.

CAUTION: Do not turn off console power without first performing a program shutdown. Doing so could corrupt the iControl program and operating system on the program card. Refer to *Program Shutdown* in the *Configuration* section of the *iControl Operator Interface* manual for the shutdown procedure.

CAUTION: The gun control cards are electrostatic sensitive devices (ESD). To prevent damage to the cards when handling them, wear a grounding wrist strap connected to the iControl enclosure or other ground. Handle the cards only by their top and bottom edges.

See Figure 5-3. Gun control cards (2) are installed in the card cage from left to right. Each card controls two guns: the bottom receptacle on the card is the odd gun number; the top receptacle the even gun number.

To remove a card, unplug the gun harnesses from the card receptacles (3 and 4), pull down the locking tab (5), then pull the card out of the card cage.

To install a new card, slide the card into the slots in the card cage and seat the card's finger board firmly into the connector slot on the backplane (6). Push the locking tab up to lock the card into the card cage. Connect the gun harnesses to the card receptacles.

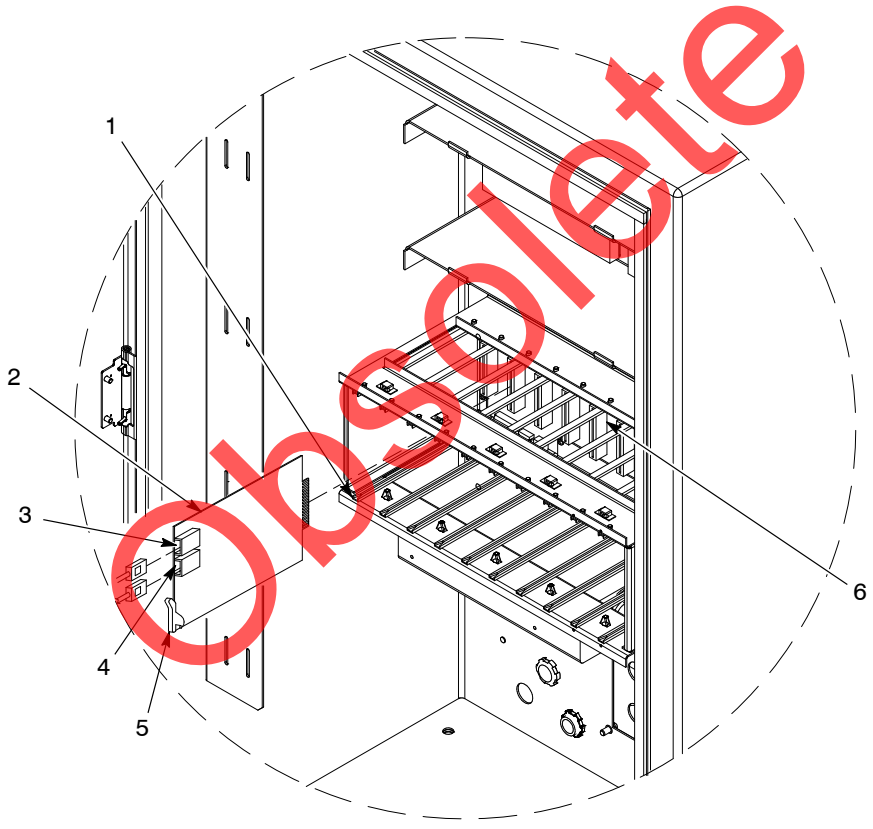


Figure 5-3 Gun Control Card Replacement

1. Card cage (slot 1)
2. Gun control card
3. Gun 2 receptacle
4. Gun 1 receptacle
5. Locking tab
6. Backplane

iControl PC Replacement

NOTE: Identify if the PC being replaced is an obsoleted PC or a new PC. If the PC being replaced is a new PC, only a direct replacement is needed. If the PC is an obsoleted model, then use the following information for replacement. (Refer to the *Parts* section for identifying the new PC model from the obsoleted model.)

NOTE: Record the current software versions before shutting down the PC.

WARNING: Shut off power to the console and PC before removing the PC. Failure to observe this warning could result in personal injury or even death.

Use the Touch Screen PC Kit to replace obsoleted PC models. The kit includes the PC with new ribbon cable, programmed memory, and Compact Flash memory.

The Compact Flash memory from the obsolete PC unit can be used in the new PC, and then the new Compact Flash can be used to make a backup.

The obsolete PC used eight M6 screws to mount to the panel. Once removed, these screws can be discarded. The new PC model has eight M6 studs that mount onto the iControl panel using eight M6 nuts.

See Figure 5-4. The Compact Flash adapter along with the adapter cable and power supply cable are no longer needed.

A longer ribbon cable is provided with the PC to connect the PC to the digitial input module.

Complete PC connections before powering up the new PC.

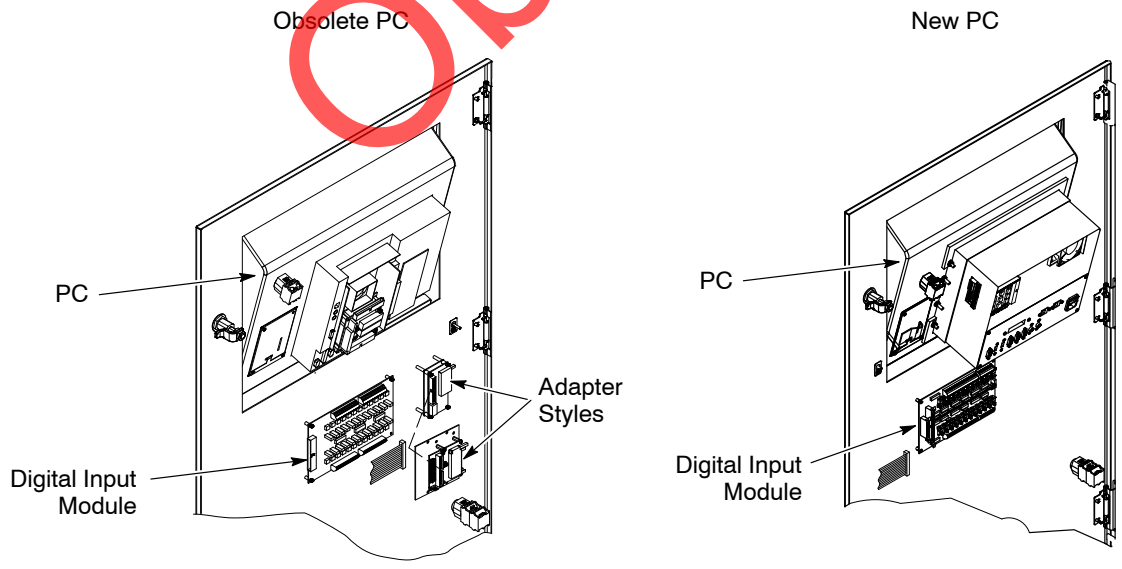


Figure 5-4 Obsolete and New iControl PC

Ribbon Cable Connections

CAUTION: Plugging in a ribbon cable the wrong way may damage the cable or the circuit boards when power is applied. Reversing the ribbon cable polarity of the cable from the iControl computer to the I/O card will cause catastrophic failure of the iControl unit. Make sure the cables are connected correctly.

The ribbon cables are keyed so that they can only be plugged in one way. If the cables are not keyed, replace them as soon as possible with keyed cables. I/O card replacements are shipped with a new cable.

The ribbon cables have a red or blue tracer that designates the pin1 side of the cable. Plug the cables into the circuit boards with the tracer aligned with pin 1 on the board. Pin 1 is designated by a 1 printed on the I/O board and a square on the computer.

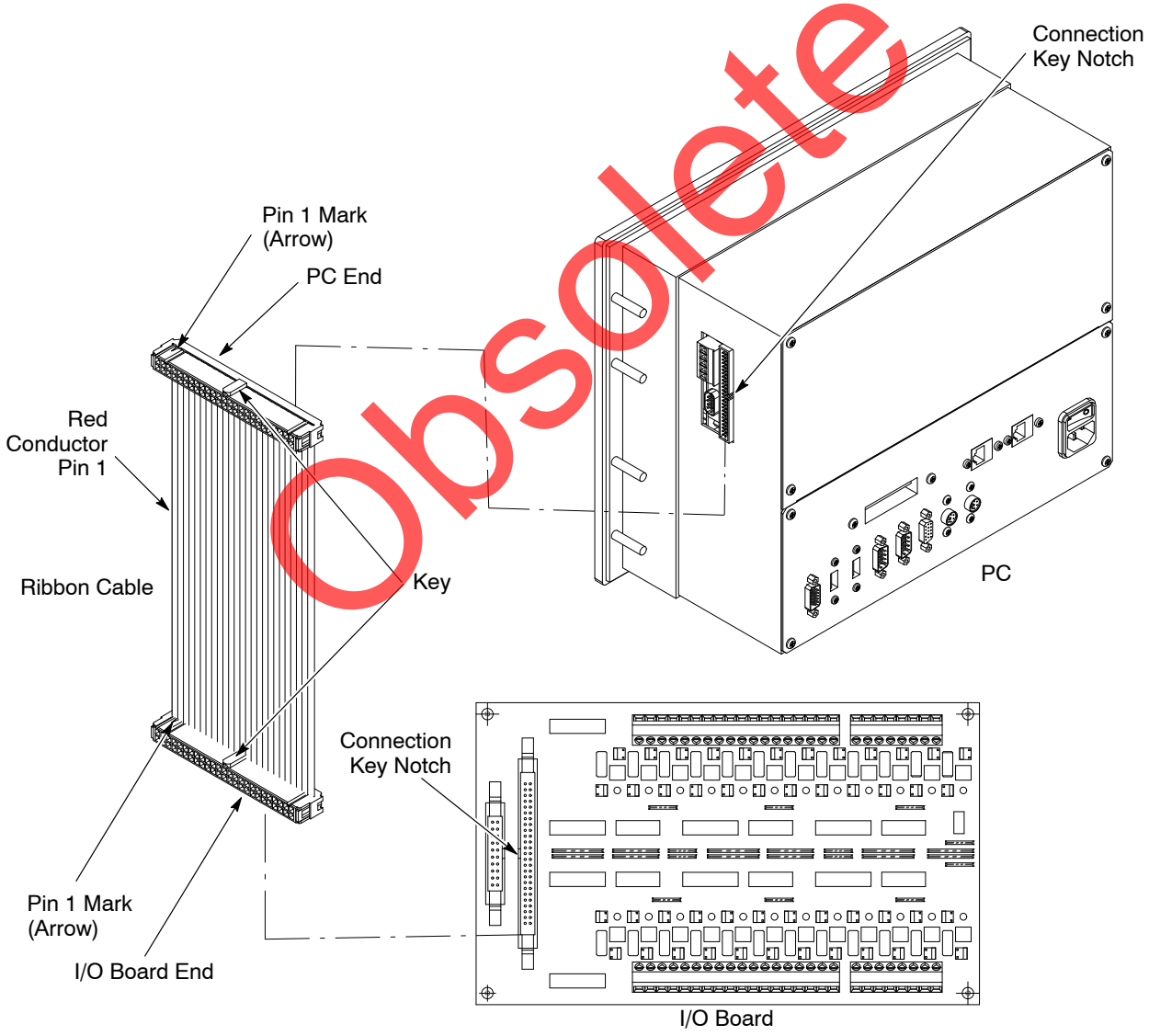


Figure 5-5 Computer–I/O Board Ribbon Cable Connections

Section 6
Parts

Introduction

To order parts, call the Nordson Finishing Customer Support Center or your local Nordson representative.

Finishing Customer Support Center
Telephone: (800) 433–9319
Facsimile: (888) 229–4580
Email: finishing_csc@nordson.com

Console Part Number List

Part	Description	Note
1104870	Controller, Prodigy, iControl, 4 gun	
1104871	Controller, Prodigy, iControl, 4 gun, w/ac	
1104872	Controller, Prodigy, iControl, 6 gun	
1104873	Controller, Prodigy, iControl, 6 gun, w/ac	
1104874	Controller, Prodigy, iControl, 8 gun	
1104875	Controller, Prodigy, iControl, 8 gun, w/ac	
1104846	Controller, Prodigy, iControl, 10 gun	
1104847	Controller, Prodigy, iControl, 10 gun, w/ac	
1104848	Controller, Prodigy, iControl, 12 gun	
1104849	Controller, Prodigy, iControl, 12 gun, w/ac	
1104850	Controller, Prodigy, iControl, 14 gun	
1104851	Controller, Prodigy, iControl, 14 gun, w/ac	
1104852	Controller, Prodigy, iControl, 16 gun	
1104853	Controller, Prodigy, iControl, 16 gun, w/ac	
1104854	Controller, Prodigy, iControl, 18 gun	
1104855	Controller, Prodigy, iControl, 18 gun, w/ac	
1104856	Controller, Prodigy, iControl, 20 gun	
1104857	Controller, Prodigy, iControl, 20 gun, w/ac	
1104858	Controller, Prodigy, iControl, 22 gun	
1104859	Controller, Prodigy, iControl, 22 gun, w/ac	
1104860	Controller, Prodigy, iControl, 24 gun	
1104861	Controller, Prodigy, iControl, 24 gun, w/ac	
1104862	Controller, Prodigy, iControl, 26 gun	
1104863	Controller, Prodigy, iControl, 26 gun, w/ac	
1104864	Controller, Prodigy, iControl, 28 gun	
1104865	Controller, Prodigy, iControl, 28 gun, w/ac	
1104866	Controller, Prodigy, iControl, 30 gun	
1104867	Controller, Prodigy, iControl, 30 gun, w/ac	
1104868	Controller, Prodigy, iControl, 32 gun	
1104869	Controller, Prodigy, iControl, 32 gun, w/ac	

Console Parts

Figures 6-2 through 6-6 show the replaceable parts for the iControl console. Contact your Nordson representative or Nordson Customer Support for help in obtaining unlisted parts.

Refer to Section 7 for electrical diagrams and junction box drawings.

See Figure 6-2 for the parts listed in this table:

Item	Part	Description	Quantity	Note
1	1100090	CONTROL UNIT, PC, panel mount, w/Ethernet	1	B
2	1051544	• INTERFACE CARD, PC104 CAN	1	
3	1105343	• CARD, I/O, PC104	1	
5	1000595	CONTACT BLOCK, 1-N.O. and 1-N.C. contact	1	
6	1000594	SWITCH, keylock, 3-position	1	
7	1032267	PANEL, keypad, iControl	1	
8	1100775	MODULE, 24-channel opto isolated	1	C
4	------	• CABLE, IDE, 80-conductor	1	
9	1032390	JUMPER, comb type, 6 pole, 10 mm	AR	A
NS	1055881	CABLE, CAT5 Ethernet, T568B colors, 30 ft	1	
11	1034281	MEMORY, CompactFlash	1	
12	1034283	MEMORY, programmed, iControl	1	
13	288806	CONTACT BLOCK, 2-N.O. contacts	1	
14	334806	SWITCH, round, 2-position, 90 degree	1	

NOTE A: Jumpers may need to be trimmed to fit into terminals.

B: See Figure 6-1. When replacing an obsolete PC with a new PC, order kit 1107109. When replacing a new PC, order part number 1100090 for a direct replacement. (Refer to the *Repair* section for PC replacement.)

C: When replacing an obsolete module (model ID-AX754), order kit 1107140. When replacing a new module (model ID-PCLD-782B), order part number 110075 for a direct replacement.

AR: As Required

Continued...

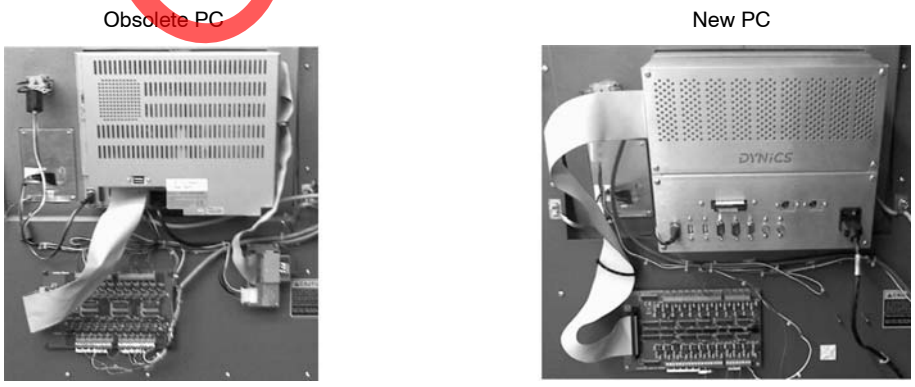


Figure 6-1 Obsolete and New iControl PC

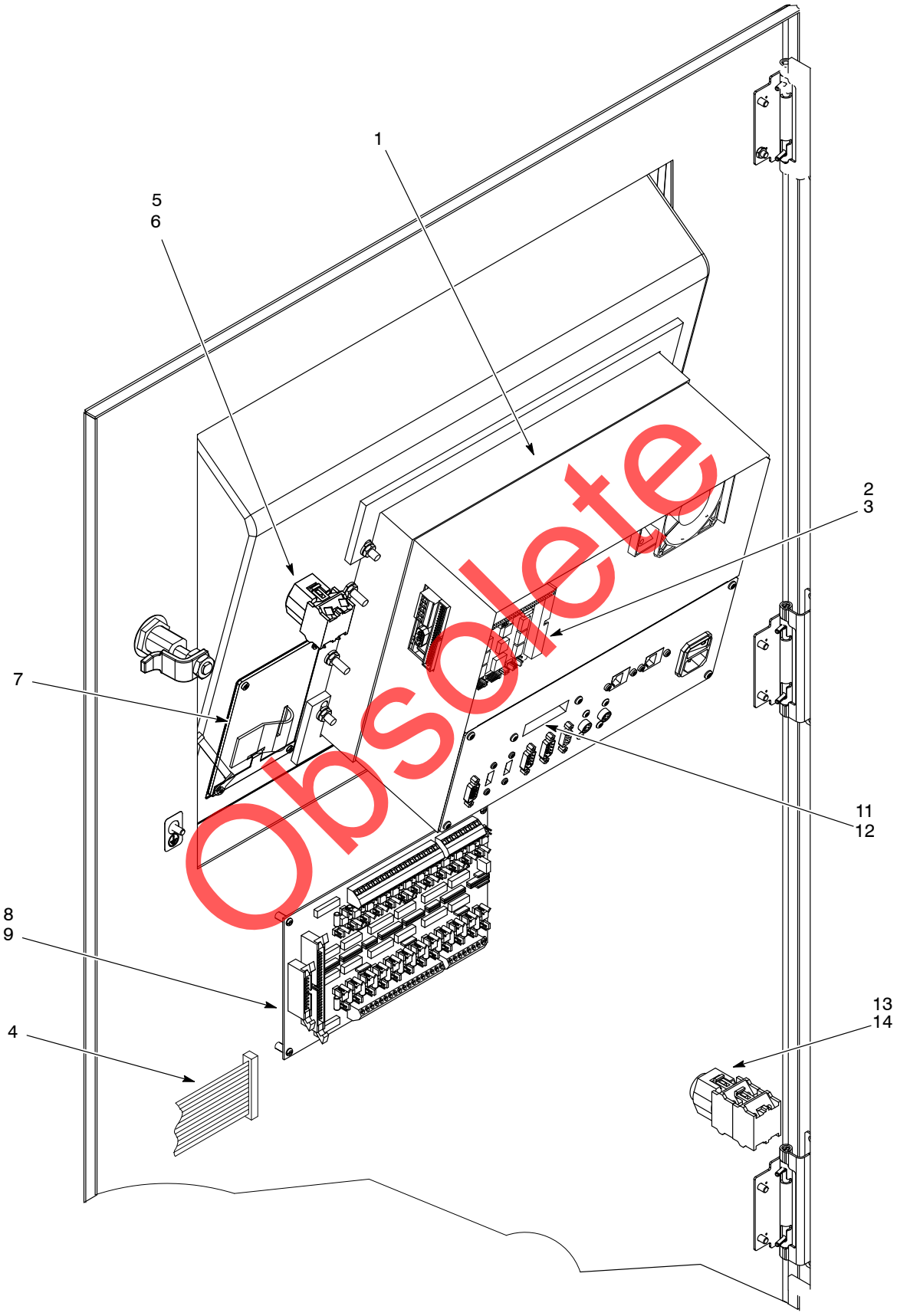


Figure 6-2 Console Parts (1 of 4) (PC shown without cover)

Console Parts *(contd)*

See Figure 6-3 for the parts listed in this table.

Item	Part	Description	Quantity	Note
16	1068695	CONTROL RELAY, 115VAC/DC, 250V/6A, DIN-MT	2	
17	1068696	CONTROL RELAY, 24VDC, 250V/6A, DIN-MT	1	
18	939683	FUSE, 6.30, fast-acting, 250V, 5 x 2	4	
19	939306	FUSE, 3.15, fast-acting, 250V, 5x20	2	
20	320586	RESISTOR, MF, 20K, 1W, 5 AXL	2	
21	334805	FILTER, line, RFI, power, 10A	2	

Continued...

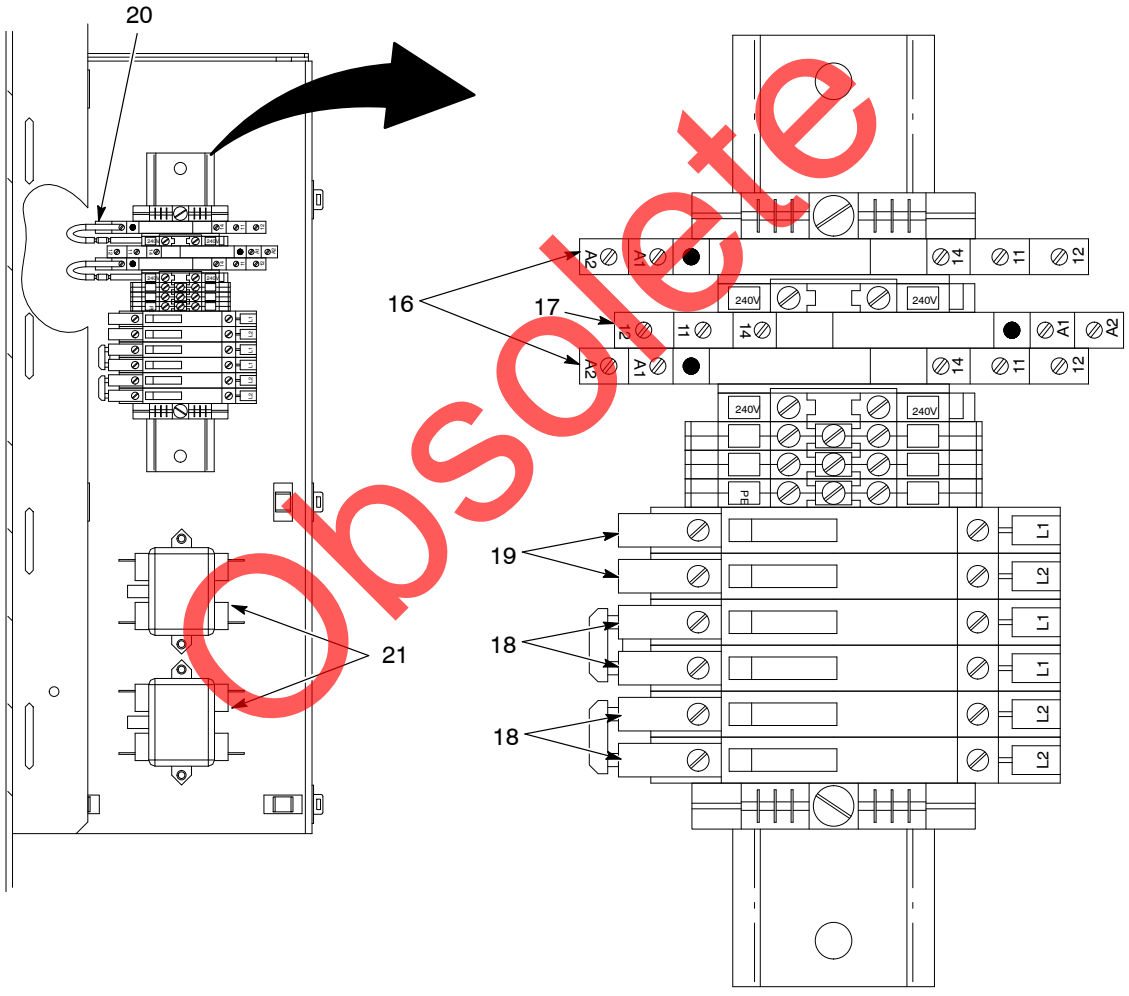


Figure 6-3 Console Parts (2 of 4)

See Figure 6-4 for the parts listed in this table.

Item	Part	Description	Quantity	Note
22	1023939	PCA, backplane, iControl	2	
23	1023877	PCA, dual gun driver, iControl	AR	A
23A	1095361	JUMPER, gun ID, odd number	AR	B
24	1098442	POWER SUPPLY, 24V, 250 watt w/fan	2	C

NOTE A: One card controls the electrostatics for 2 automatic spray guns.

B: Use to prevent fault LED from lighting when odd number of guns are connected. Plug into gun card receptacle in place of receptacle harness for unused receptacle. One jumper is shipped with each console.

C: See Figure 6-5. When replacing obsolete power supplies (334817 or 334803), order kit 1107143 to update system to a single power supply. If replacing a new power supply (1098442), order 1098442 for a direct replacement.

AR: As Required

Continued...

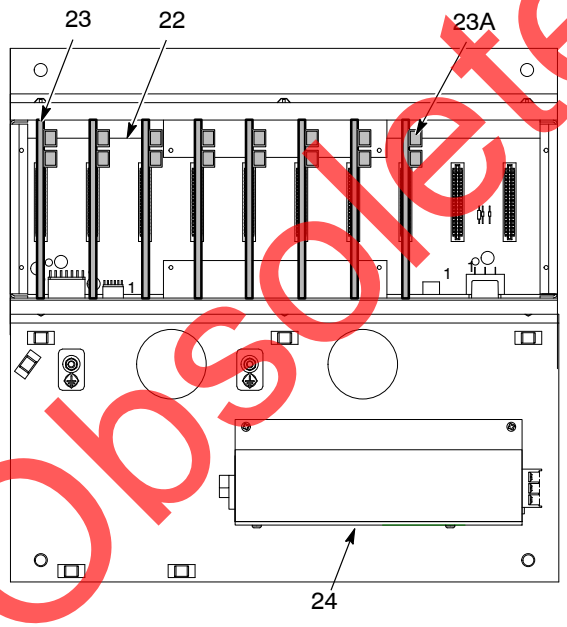


Figure 6-4 Console Parts (3 of 4)

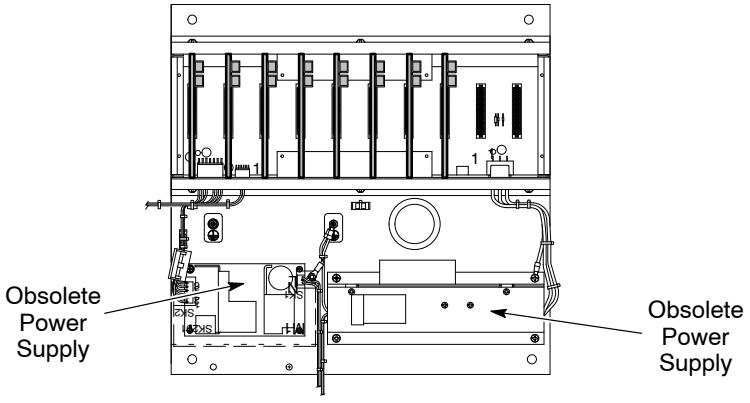


Figure 6-5 Obsolete Power Supplies

Console Parts *(contd)*

See Figure 6-6.

Item	Part	Description	Quantity	Note
27	1031501	RECEPTACLE, 8-position, gun, 70 in.	AR	A
27A	1023695	SEAL, bulkhead, 7/8–16 thread	AR	B
28	984526	NUT, lock, $^1/_2$ in. conduit	AR	
29	939122	SEAL, conduit fitting, $^1/_2$ in.	AR	
30	334800	PLUG, $^1/_2$ in.	AR	

NOTE A: One receptacle is required for each automatic spray gun.
B: Use to cap unused receptacles. One seal is shipped with each console.
AR: As Required

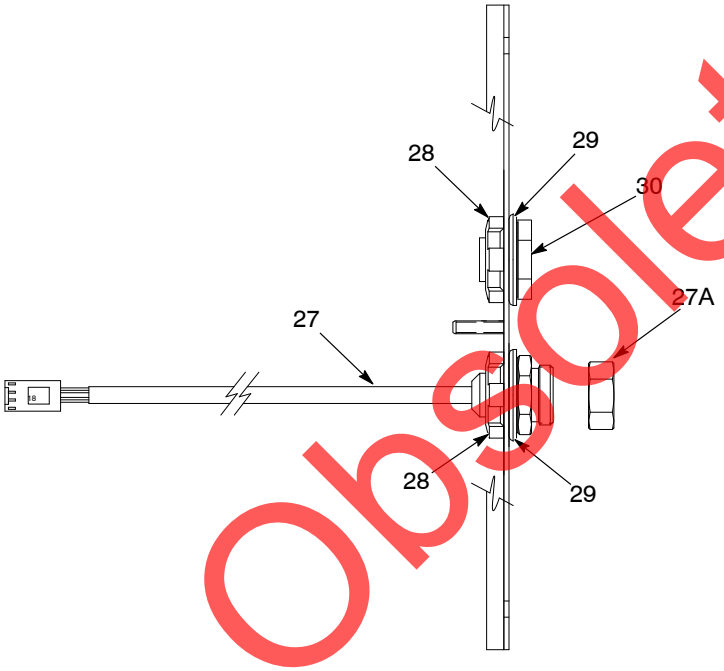


Figure 6-6 Console Parts (4 of 4)

Repair Kits

PC

The touch screen repair kit is only for the replacement of obsolete PCs. See *Console Parts* on page 6-3 for obsolete PC identification.

Part	Description	Quantity	Note
1107109	KIT, touch screen PC, atom-based	1	
1100090	• CONTROL UNIT, PC, panel mount, touch screen	1	
1034283	• MEMORY, programmed, iControl	1	
1034281	• MEMORY, compact flash	1	

Digital Input Module

The digital input module kit is only for the replacement of the obsolete modules (model ID-AX754).

Part	Description	Quantity	Note
1107140	KIT, 24 channel opto-input interface card	1	
1100775	• MODULE, 24 channel opto isolated digital input	1	
1107147	• CABLE, ribbon, 20-in, iControl	1	
1107146	• JUMPER, comb-style, 12 pole, 10mm spacing	2	
1034286	• MEMORY, programmed, iControl	1	
1034281	• MEMORY, compact flash	1	

Power Supply

The power supply kit is only for the replacement of the two obsolete power supplies (part numbers 334817 or 334803). The kit takes the two power supply system and reduces it to a single power supply. See Figures 6-4 and 6-5.

Part	Description	Quantity	Note
1107143	KIT, power supply, single Prodigy, iControl	1	
1098442	• POWER SUPPLY, 400W, +24V, +/–12V, 5+, 5 slot	1	
1105301	• HARNESS, power, +5, +12, –12, iControl, Prodigy	1	
1105303	• HARNESS, power, AC	1	
1105304	• HARNESS GROUP, power, 24V	1	
1098443	• BRACKET, power supply, iControl, right angle	1	
983403	• WASHER, lock, m, spt, M4, steel, zinc	4	
982164	• SCREW, pan, slt, M4 x 6, zinc	4	

Junction Boxes, Extension Boxes, and Control Panels

Part	Description	Note
1035897	JUNCTION BOX, photoeye, 30 watt, iControl	A
1035899	JUNCTION BOX, photoeye extension, iControl	A
1055890	JUNCTION BOX, scanner, in/out positioner, iControl	A
1103901	INTERFACE BOX, Ethernet network, iControl	A
1055889	CONTROL PANEL, in/out positioner, iControl	A, B
1055883	CONTROL PANEL, analog positioner, iControl	A, E
1070103	CONTROL PANEL, in/out positioner/reciprocator, iControl	A, B
1098087	CONTROL PANEL, in/out positioner, iControl (plug-in)	A, C
1097160	CONTROL PANEL, in/out positioner/reciprocator, iControl (plug-in)	A, C
1092923	CONTROL PANEL, top down positioner, iControl	A, B
1092924	CONTROL PANEL, bottom up positioner, iControl	A, B
1600007	CONTROL PANEL, bottom up, AC, plug-in, iControl	A, C, D
1600011	CONTROL PANEL, top down, AC, plug-in, iControl	A, C, D

NOTE A: Refer to Section 7, Wiring and Pneumatic Diagrams, for repair parts.
B: Use with Nutro-built (VO618N, VRnnRD models) positioners and reciprocators.
C: Use with Nordson positioners and reciprocators.
D: Use with Nordson reciprocator operating as a vertical positioner.
E: Special use when notes B, C, or D do not apply.

Ethernet Components

Part	Description	Note
1058222	CABLE, CAT 5 Ethernet, T568B colors, 100 ft	A
1058223	CABLE, CAT 5 Ethernet, T568B colors, 300 ft	A
1058224	MODULE, termination, CAT 5, T568B colors	

NOTE A: Cables have male connectors at each end. Refer to Section 3, Installation, for use.

Conveyor Encoder

Part	Description	Note
1074261	ENCODER, 24 PPR, w/cable	

CAN Cable

Part	Description	Note
1605395	JACKETED CABLE, twisted pair, shielded, 24 AWG, 120 ohm	A

NOTE A: Order length desired in increments of one foot.

Photocells and Scanners

Part	Description	Note
1037969	PHOTOCELL, wire goods	
131473	SENSOR, opposed mode emitter (Banner SM31E)	
131486	SENSOR, opposed mode receiver (Banner SM31R)	
170730	PHOTOCELL, retroreflective	
321158	CONTROLLER, analog, mini-array	A
321159	CONTROLLER, discrete, mini-array	A
321160	SENSOR, light emitter, 6 in., 3/4 in.beam spacing, 8 beam	
321161	SENSOR, light receiver, 6 in., 3/4 in.beam spacing, 8 beam	
321162	SENSOR, light emitter, 12 in., 3/4 in.beam spacing, 16 beam	
321163	SENSOR, light receiver, 12 in., 3/4 in.beam spacing, 16 beam	
321164	SENSOR, light emitter, 18 in., 3/4 in. beam spacing, 24 beam	
321165	SENSOR, light receiver, 18 in., 3/4 in. beam spacing, 24 beam	
339739	SENSOR, light emitter, 24 in., 3/4 in. beam spacing, 32 beam	
339740	SENSOR, light receiver, 24 in., 3/4 in. beam spacing, 32 beam	
339741	SENSOR, light emitter, 30 in., 3/4 in. beam spacing, 40 beam	
339742	SENSOR, light receiver, 30 in., 3/4 in. beam spacing, 40 beam	
339743	SENSOR, light emitter, 36 in., 3/4 in. beam spacing, 48 beam	
339744	SENSOR, light receiver, 36 in., 3/4 in. beam spacing, 48 beam	
339745	SENSOR, light emitter, 42 in., 3/4 in. beam spacing, 56 beam	
339746	SENSOR, light receiver, 42 in., 3/4 in. beam spacing, 56 beam	
339747	SENSOR, light emitter, 48 in., 3/4 in. beam spacing, 64 beam	
339748	SENSOR, light receiver, 48 in., 3/4 in. beam spacing, 64 beam	
339749	SENSOR, light emitter, 60 in., 3/4 in. beam spacing, 80 beam	
339750	SENSOR, light receiver, 60 in., 3/4 in. beam spacing, 80 beam	
339751	SENSOR, light emitter, 72 in., 3/4 in. beam spacing, 96 beam	
339752	SENSOR, light receiver, 72 in., 3/4 in. beam spacing, 96 beam	
NOTE A: Requires custom programming to match the application. Contact Nordson customer support.		

Photocell and Scanner Cables

Part	Description	Note
176429	SOW cable, 18–4	
321155	CABLE, scanner, 15 ft.	
321156	CABLE, scanner, 25 ft.	
321157	CABLE, scanner, 50 ft.	
343207	CABLE, scanner rated, 15 ft.	
347230	CABLE, input, 5 wire, 6 meter, male	

Software Replacement Kits

Part	Description	Note
1107154	KIT, software, iControl, Ver. 0.9.26	
1107159	• MEMORY, programmed, iControl, Ver. 0.9.26	
1034281	• MEMORY, Compact Flash	
1107155	KIT, software, iControl, Ver. 2.2.14.2	
1107160	• MEMORY, programmed, iControl, Ver. 2.2.14.2	
1034281	• MEMORY, Compact Flash	
1107156	KIT, software, iControl, Ver. 3.0.6	
1107162	• MEMORY, programmed, iControl, Ver. 3.0.6	
1034281	• MEMORY, Compact Flash	

Section 7
Wiring and Pneumatic Diagrams

Diagram (Drawing Number)	Sheets
System Diagram	1
iControl Console Wiring Diagram (1105055)	5
Prodigy Manual Gun Controller Junction Box (1057458)	1
Photoeye Junction Box (1035897)	4
Extension Junction Box (1035899)	1
Network Interface Box (1103901)	1
In/Out Positioner Scanner Control Panel (1055890)	2
iControl In/Out Positioner Control Panel (1055889) (for Nutro-built positioners)	6
iControl In/Out Positioner / Reciprocator Control Panel (1070103) (Nutro-built positioner with reciprocator)	6
iControl In/Out Positioner Control Panel (Plug-In) (1098087) (for Nordson positioners)	6
iControl In/Out Positioner/Reciprocator Control Panel (Plug-In) (1097160) (for Nordson positioners and reciprocators)	7
iControl Top Down Positioner Control Panel (1092923) (for Nutro-built positioner)	5
iControl Bottom Up Positioner Control Panel (1092924) (for Nutro-built positioner)	5
iControl Top Down Positioner Control Panel (1600011) (for Nordson reciptrocator operating as a vertical positioner)	7
iControl Bottom Up Positioner Control Panel (1600007) (for Nordson reciprocator operating as a vertical positioner)	7

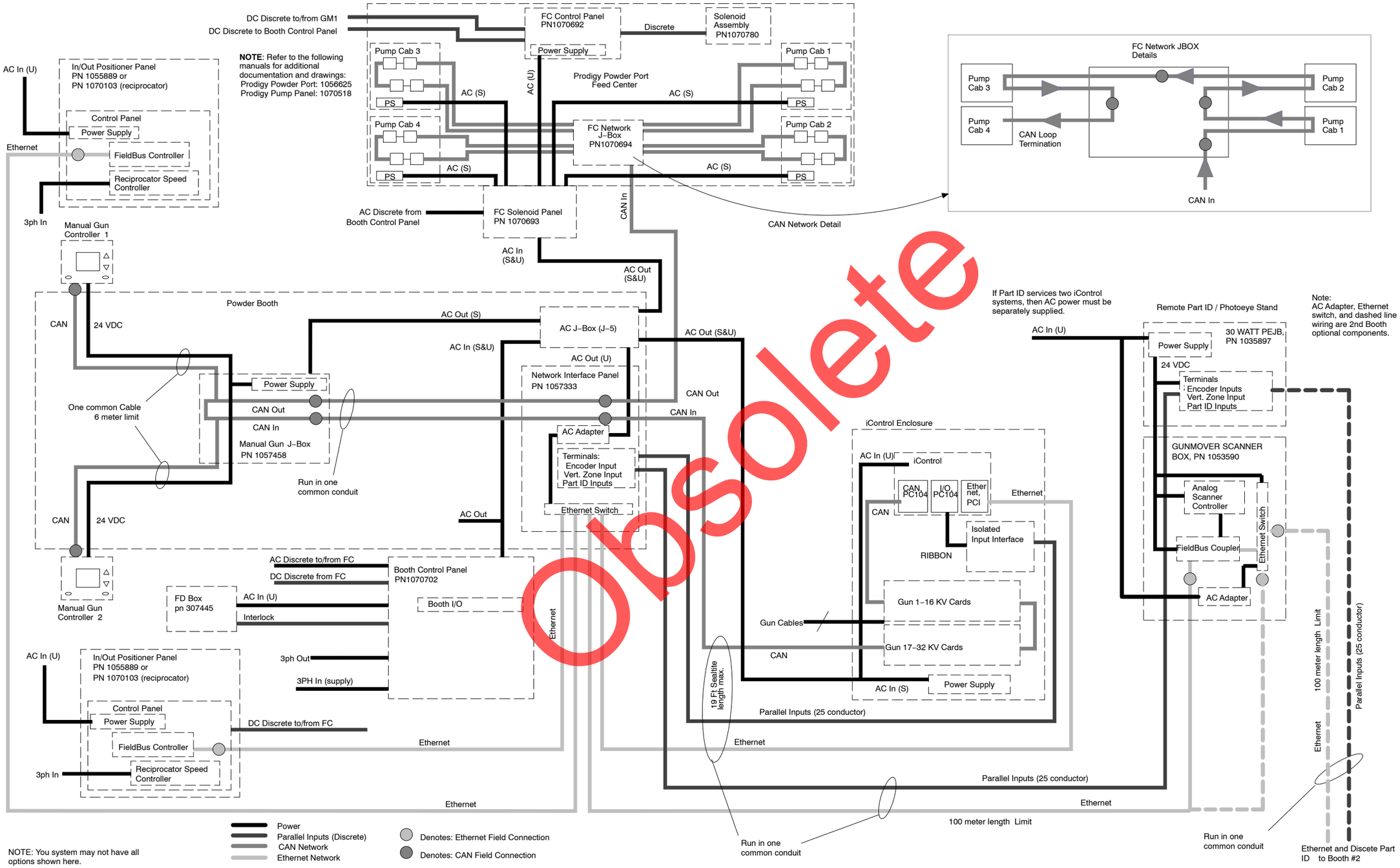


Figure 7-1 Prodigy iControl System Diagram

DECLARATION of CONFORMITY

PRODUCT: Prodigy Robot Automatic Powder Spray Application System

Models: Prodigy

Description: This is a automatic electrostatic powder spray system, including applicator, control cable and associated programmable controller made for mounting to a robot supplied by the customer.

APPLICABLE DIRECTIVES:

2006/42/EC – Machinery Directive
2004/108/EEC – EMC Directive
94/9/EC – ATEX Directive

STANDARDS USED TO VERIFY COMPLIANCE:

EN/ISO12100 (2011)	EN50177 (2009)	EN61000–6–3 (2007)	FM7260 (1996)
EN60204–1 (2006)	EN50050 (2006)	EN61000–6–2 (2005)	EN50177 (2009)
EN55011 (2009)			

Principles:

This product has been manufactured according to good engineering practice.
The product specified conforms to the directive and standards described above.

Type of Protection:

- Ambient Temperature: +20 °C to +40 °C
- II 3 D EEx 2mJ (Type AP)

Mike Hansinger
Manager Engineering Development
Industrial Coating Systems
Nordson Corporation

Date: 18 June 2012

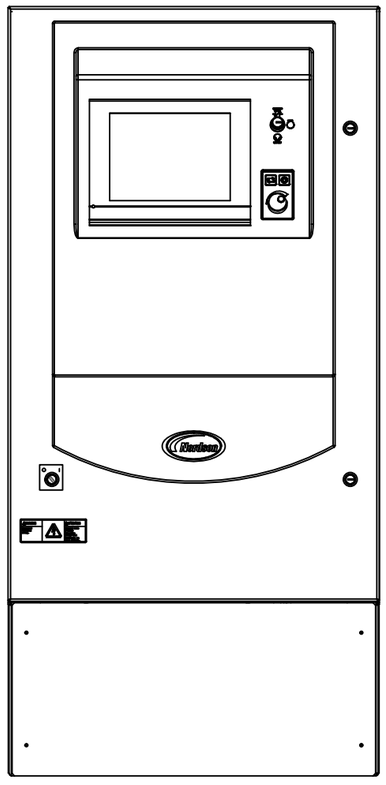
NORDSON AUTHORIZED REPRESENTATIVE IN THE EU:

Contact: Operations Manager
Industrial Coating Systems
Nordson Deutschland GmbH
Heinrich–Hertz–StraBe 42–44
D–40699 Erkrath

1049092

CHG LTR	REVISION	BY	CHK	ECR NO.	DATE
14	14) SHT.1 & 2–REMOVED P/N's 333751,1010698,101697,	MHH	DLU	PE604178	27MAR15
	1032224,327734,327735,327736,1064012 & 1001222				
15	15) REMOVED ALL iCONTROL ASSEMBLIES FOR CLASSIFIED	DC	DLU	PE604764	15APR16
	LOCATIONS (SHEET 1); REMOVED ALL iCONTROL ASSEMBLIES				
	FOR UNCLASSIFIED LOCATIONS (SHEET 2); REMOVED ALL				
	ENCORE iCONTROL ASSEMBLIES FOR CLASSIFIED LOCATIONS				
	(SHEET 3).				

CHG LTR	REVISION	BY	CHK	ECR NO.	DATE
A01	RELEASED FOR PRODUCTION.	MB	BF	PE32280	23JAN04
	02) ADDED PRODIGY CONTROLLERS				
A03	03) ADDED SURECOAT CABLE 20 METER AUTO.	SRL	MRS	GN300236	10AUG04
A04	04) ADDED 4–GUN PRODIGY CONTROLLER, AND 16M PRODIGY	RF	JP	PE37267	09MAR06
	CABLE (AUTO).				
A05	05) ADD BAR MOUNT GUN	RF	BF	PE37267	21JUL06
A06	06) ADDED iCONTROL 4–GUN CONFIGURATIONS	RF	BF	PE300525	11AUG06
A07	07) ADDED SHT. 2 AND iCONTROL CONFIGURATION TABLES	MHH	BF	PE300636	04MAY07
A08	08) ADDED OPTIONAL KIT FOR PRODIGY AUTMATIC GUNS.	DC	BF	PE601738	09SEP09
A09	09) ADDED SHEET 3; PRODIGY AUTO GUN P/N WAS 1054037.	JB	BF	PE601926	29JAN10
A10	10)REVISED CONTROLLER PART NUMBERS WITH ONES THAT	JB	BF	PE602229	16NOV10
	HAVE NEW POWER SUPPLY AND PC				
11	11) SHT.3–ADDED P/N 1600809 TO TABLES	MHH	BP	PE602719	19JAN12
12	12) SHT.3–REMOVED P/N 1600809 FROM TABLES	MHH	DLU	PE603436	15OCT13
13	13) SHT.3–ADDED P/N 1606986 TO TABLES	MB	BF	PE604134	14FEB15



A06 A10

15

14

14 A03

iCONTROL – PRODIGY

A02

THE FOLLOWING CONTROLLERS ARE SUITABLE FOR CLASS II, DIV 2, GROUP F & G HAZARDOUS (CLASSIFIED) LOCATIONS:

A04 A10

1104870	CONTROLLER,PRODIGY,ICONTROL,4 GUN
1104872	CONTROLLER,PRODIGY,ICONTROL,6 GUN
1104874	CONTROLLER,PRODIGY,ICONTROL,8 GUN
1104846	CONTROLLER,PRODIGY,ICONTROL,10 GUN
1104848	CONTROLLER,PRODIGY,ICONTROL,12 GUN
1104850	CONTROLLER,PRODIGY,ICONTROL,14 GUN
1104852	CONTROLLER,PRODIGY,ICONTROL,16 GUN
1104854	CONTROLLER,PRODIGY,ICONTROL,18 GUN
1104856	CONTROLLER,PRODIGY,ICONTROL,20 GUN
1104858	CONTROLLER,PRODIGY,ICONTROL,22 GUN
1104860	CONTROLLER,PRODIGY,ICONTROL,24 GUN
1104862	CONTROLLER,PRODIGY,ICONTROL,26 GUN
1104864	CONTROLLER,PRODIGY,ICONTROL,28 GUN
1104866	CONTROLLER,PRODIGY,ICONTROL,30 GUN
1104868	CONTROLLER,PRODIGY,ICONTROL,32 GUN

THE ABOVE ARE APPROVED FOR USE WITH THE FOLLOWING GUNS AND CABLES LOCATED IN A CLASS II, DIV 1, GROUP F & G HAZARDOUS(CLASSIFIED) LOCATION:

GUNS:

A09 A05

1101743	GUN,AUTOMATIC,95KV,PRODIGY
1070497	GUN,AUTOMATIC,95KV,PRODIGY,BAR MOUNT

OPTIONS FOR AUTOMATIC GUNS:

A08

1097278	KIT,ADAPTER ASSY,PRODIGY/SC NOZZLE EXT

CABLES:

A04

1050040	CABLE,PRODIGY AUTO,8M
1050043	CABLE,PRODIGY AUTO,12M
1069306	CABLE,PRODIGY AUTO,16M

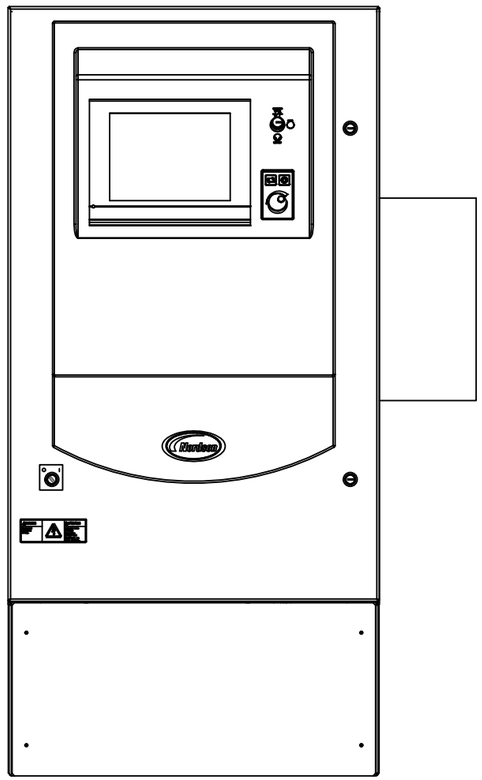
CRITICAL

No revisions permitted without approval of the proper agency

NEXT ASSEMBLY	ALL DIMENSIONS IN MILLIMETERS EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
FIRST PRODUCT USED ON ICONTROL	X ±0.8 X.X ±0.25 X.XX ±0.13	DRAWN BY MB	DATE 23JAN04
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	MACHINED SURFACES 1.6/	CHECKED BY BF	APPROVED BY JAP
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	BREAK OUTSIDE AND INSIDE CORNERS 0.1 TO 0.8 MAX.	REL NO PE32280	REF DWG, APPROVED EQUIPMENT, ICONTROL
	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1049092 REV. 15
	FIRST ANGLE PROJECTION	SCALE: 1:2	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 1 / 3

1 0 4 9 0 9 2

CHG LTR	REVISION	BY	CHK	ECR NO.	DATE
	REFERENCE SHEET #1				



iCONTROL – PRODIGY

THE FOLLOWING CONTROLLERS ARE SUITABLE FOR UNCLASSIFIED LOCATIONS:

1104847	CONTROLLER,PRODIGY,iCONTROL,10 GUN,W/A–C
1104849	CONTROLLER,PRODIGY,iCONTROL,12 GUN,W/A–C
1104851	CONTROLLER,PRODIGY,iCONTROL,14 GUN,W/A–C
1104853	CONTROLLER,PRODIGY,iCONTROL,16 GUN,W/A–C
1104855	CONTROLLER,PRODIGY,iCONTROL,18 GUN,W/A–C
1104857	CONTROLLER,PRODIGY,iCONTROL,20 GUN,W/A–C
1104859	CONTROLLER,PRODIGY,iCONTROL,22 GUN,W/A–C
1104861	CONTROLLER,PRODIGY,iCONTROL,24 GUN,W/A–C
1104863	CONTROLLER,PRODIGY,iCONTROL,26 GUN,W/A–C
1104865	CONTROLLER,PRODIGY,iCONTROL,28 GUN,W/A–C
1104867	CONTROLLER,PRODIGY,iCONTROL,30 GUN,W/A–C
1104869	CONTROLLER,PRODIGY,iCONTROL,32 GUN,W/A–C
1104871	CONTROLLER,PRODIGY,iCONTROL,4 GUN,W/A–C
1104873	CONTROLLER,PRODIGY,iCONTROL,6 GUN,W/A–C
1104875	CONTROLLER,PRODIGY,iCONTROL,8 GUN,W/A–C

THE ABOVE ARE APPROVED FOR USE WITH THE FOLLOWING GUNS AND CABLES LOCATED IN A CLASS II, DIV 1, GROUP F & G HAZARDOUS (CLASSIFIED) LOCATION:

GUNS:

1101743	GUN,AUTOMATIC,95KV,PRODIGY
1070497	GUN,AUTOMATIC,95KV,PRODIGY,BAR MOUNT

OPTIONS FOR AUTOMATIC GUNS:

1097278	KIT,ADAPTER ASSY,PRODIGY/SC NOZZLE EXT

CABLE:

1050040	CABLE,PRODIGY AUTO,8M
1050043	CABLE,PRODIGY AUTO,12M
1069306	CABLE,PRODIGY AUTO,16M

CRITICAL
No revisions permitted without approval of the proper agency

NEXT ASSEMBLY	ALL DIMENSIONS IN MILLIMETERS EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
FIRST PRODUCT USED ON: ICONTROL	X ±0.8 X.X ±0.25 X.XX ±0.13	DRAWN BY: MHH	DATE: 04MAY07
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	MACHINED SURFACES 1.6/ AA	CHECKED BY: BF	APPROVED BY: JAP
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	BREAK OUTSIDE AND INSIDE CORNERS 0.1 TO 0.8 MAX.	REL NO: PE300636	REF DWG, APPROVED EQUIPMENT, ICONTROL
	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER: 1 0 4 9 0 9 2	REV. 15
	FIRST ANGLE PROJECTION	SCALE: 1:2	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
			PAGE 2 / 3

1105055

CONDUIT WIRING TO RELAYS AND RESISTORS				
CONNECTION OF:		CONNECTION TO:		
CONDUIT WIRE/COLOR	RESISTOR	RELEAY-TERMINAL NO.	TERMINAL BLOCK	NOTES:
GRAY		R1 – A2		
GRAY			240V (next to R1)	SEE NOTE 1
	RES1	R1 – A1		
	RES1		240V (next to R1)	SEE NOTE 1
YELLOW		R2 – 11		
YELLOW		R2 – 12		
		R2 – 14		NO CONNECTION
ORANGE		R3 – A2		
RED			240V (next to R3)	SEE NOTE 2
	RES2	R3 – A1		
	RES2		240V (next to R3)	SEE NOTE 2
GREEN/YEL			PE	

NOTES:
1.) THIS GRAY WIRE AND 1 LEAD OF RES1 ARE BOTH TERMINATED AT THE "240V" TERMINAL ADJACENT TO R1.
2.) RED WIRE AND 1 LEAD OF RES2 ARE BOTH TERMINATED AT THE "240V" TERMINAL ADJACENT TO R3.

DETAIL A

iCONTROL® PRIMARY SUB-PANEL
GUNS 1-16

iCONTROL BACKPLANE – 1023939

FERRITE BEAD 185067A

TO CONTROL UNIT (SEE SHEET 5)

SIGNAL INTERFACE HARNESS 1042647

+24 VDC HARNESS 1105304

+5V, +12V, –12V POWER HARNESS 1105301

400W POWER SUPPLY 1098442

KEYLOCK SWITCH 1000594

CONTACT BLOCK 1000595

FERRITE BEAD 185067A

iCONTROL® FRONT PANEL

TO 24 CH DIGITAL INPUT MODULE (SEE SHEET 2)

NETWORK TERM BACKPLANE ADDRESS
BIT 0
BIT 1

SW1			
	BIT 1	BIT 0	GUNS #
PRIMARY	UP	UP	1–16
SECONDARY	UP	DOWN	17–32

SW1

OR

UP=TOP IN
DOWN=BOTTOM IN

DETAIL A

DWN = CONTINUE

DETAIL A

iCONTROL® SECONDARY SUB-PANEL
GUNS 17-32

iCONTROL BACKPLANE – 1023939

+24 VDC HARNESS 1105304

TWO SUB–PANELS

+5V, +12V, –12V POWER HARNESS 1105301

400W POWER SUPPLY 1098442

RES 1

RES 2

TERMINAL BLOCK 1055308

AC POWER HARNESS 1105303

TWO SUB–PANELS

ONE SUB–PANEL

AC POWER HARNESS 1105303

GROUND, I/O JUMPER GROUP 1042990

AUXILIARY CONTACT BLOCK

MAIN CONTACT BLOCK

CONV INT.

ALARM

REMOTE LOCKOUT

FILTERS 334805

SWITCH – 334806
CONTACT BLOCKS – 288806

1/2" CONDUIT/WIRE

HARNESS,CONTROL UNIT POWER,ICONTROL 1103114

TO PANEL MOUNT PC CONTROL UNIT (SEE SHEET 5)

TO 25 COND CABLE FROM SHT 2

TO CAT5 CABLE FROM SHT 5

3/4" CONDUIT/WIRE

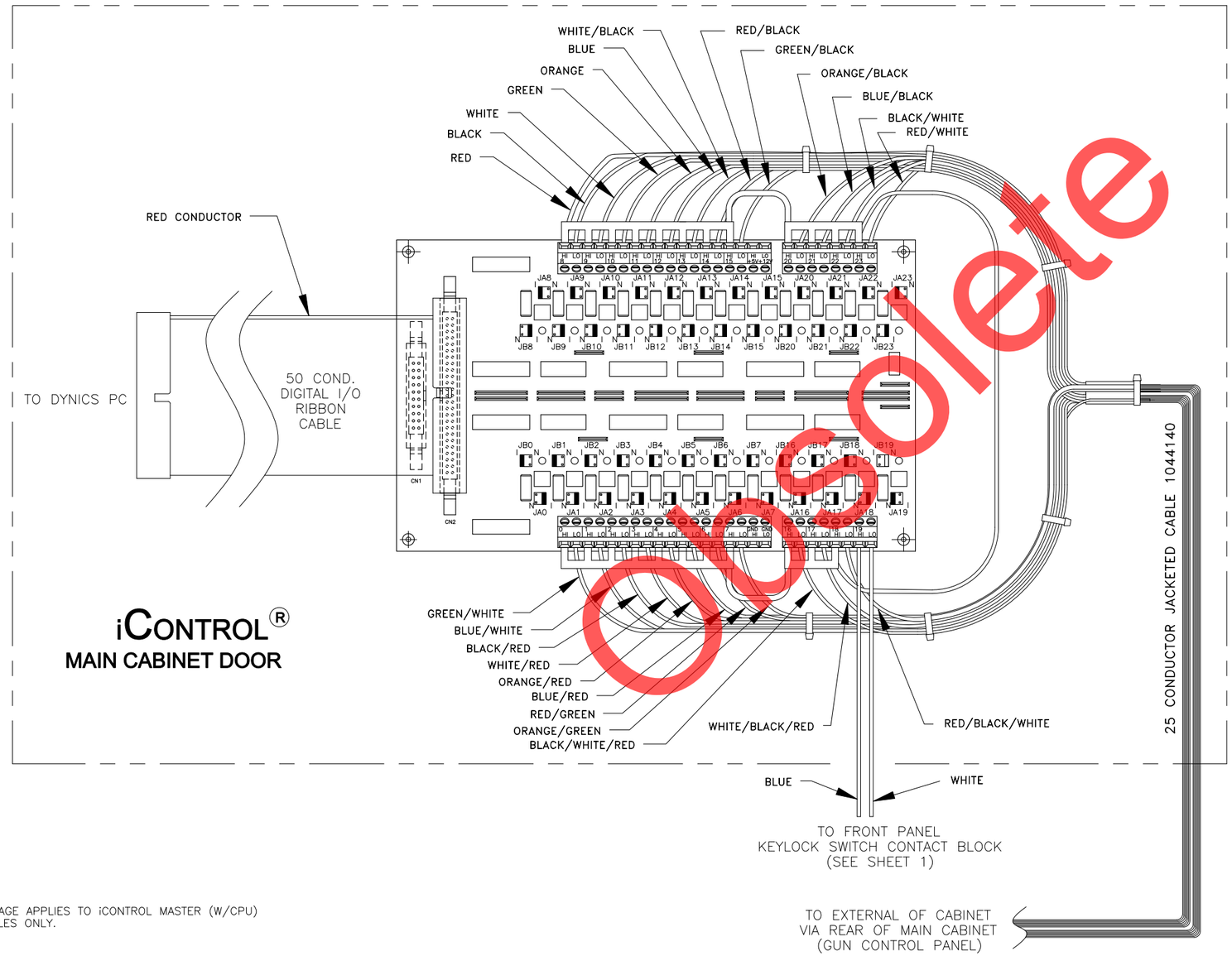
CRITICAL
No revisions permitted without approval of the proper agency

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/– .030 X.XXX +/– .010	DRAWN BY JB	DATE 08NOV10
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED SN	APPROVED BY SN
FIRST PRODUCT USED ON	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO	PE602229
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1105055 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: N/A	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 1 / 5

WIRING DIAGRAM, ICONTROL, PRODIGY

1105055

24 CH OPTO ISOLATED DIGITAL INPUT MODULE ASSEMBLY 1105053



iCONTROL DISCRETE INPUT CABLE COLOR CODE ASSIGNMENTS

CABLE COLOR	INPUT BOARD TERMINAL	FIELD TERMINAL NUMBER	FUNCTION
BLK	8 LO	1	ZONE 1
WHT	9 LO	2	ZONE 2
GRN	10 LO	3	ZONE 3
ORG	11 LO	4	ZONE 4
BLU	12 LO	5	ZONE 5
WHT/BLK	13 LO	6	ZONE 6
RED/BLK	14 LO	7	ZONE 7
GRN/BLK	15 LO	8	ZONE 8
ORG/BLK	20 LO	9	PART ID bit 1
BLU/BLK	21 LO	10	PART ID bit 2
BLK/WHT	22 LO	11	PART ID bit 3
RED/WHT	23 LO	12	PART ID bit 4
GRN/WHT	0 LO	13	PART ID bit 5
BLU/WHT	1 LO	14	PART ID bit 6
BLK/RED	2 LO	15	PART ID bit 7
WHT/RED	3 LO	16	PART ID bit 8
ORG/RED	4 LO	17	SPARE
BLU/RED	5 LO	18	SPARE
RED/GRN	6 LO	19	SPARE
ORG/GRN	7 LO	20	ENCODER A
BLK/WHT/RED	16 LO	21	ENCODER B
WHT/BLK/RED	17 LO	22	SPARE
RED/BLK/WHT	18 LO	23	SPARE
GRN/BLK/WHT	N/C	--	----
BLUE from FRONT PANEL	19 HI	--	CONVEYOR I-LOCK
WHITE from FRONT PANEL	19 LO	--	CONVEYOR I-LOCK
RED	8 HI	(+)	VDC

CRITICAL
No revisions permitted without approval of the proper agency

NOTES:
1.) THIS PAGE APPLIES TO iCONTROL MASTER (W/CPU) CONSOLES ONLY.

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
NEXT ASSEMBLY	X.XX +/- .030 X.XXX +/- .010	DRAWN BY JB	DATE 08NOV10
FIRST PRODUCT USED ON	MACHINED SURFACES 125/ AA	CHECKED BY SN	APPROVED BY SN
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602229	WIRING DIAGRAM, iCONTROL, PRODIGY
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1105055 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: N/A	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 2 / 5

1105055

GUN CONTROL PANEL
(INSIDE VIEW OF CABINET REAR)

1 3 5 7 9 11 13 15
2 4 6 8 10 12 14 16

70 IN.
8 POSITION GUN
RECEPTACLES
1031501
(AS REQ'D)

DUAL GUN DRIVER	DUAL GUN DRIVER	DUAL GUN DRIVER	DUAL GUN DRIVER	DUAL GUN DRIVER	DUAL GUN DRIVER	DUAL GUN DRIVER	DUAL GUN DRIVER
GUNS 1 & 2	GUNS 3 & 4	GUNS 5 & 6	GUNS 7 & 8	GUNS 9 & 10	GUNS 11 & 12	GUNS 13 & 14	GUNS 15 & 16
TO J1 OF 1023939	TO J2 OF 1023939	TO J3 OF 1023939	TO J4 OF 1023939 (AS REQ'D)	TO J5 OF 1023939 (AS REQ'D)	TO J6 OF 1023939 (AS REQ'D)	TO J7 OF 1023939 (AS REQ'D)	TO J8 OF 1023939 (AS REQ'D)

CRITICAL
No revisions permitted without approval of the proper agency

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001	
X.XX +/- .030 X.XXX +/- .010	DRAWN BY JB	DATE 08NOV10	
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY SN	APPROVED BY SN
FIRST PRODUCT USED ON	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602229	WIRING DIAGRAM, ICONTROL, PRODIGY
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1105055 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: N/A	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
			PAGE 3 / 5

1105055

CRITICAL
No revisions permitted without approval of the proper agency

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY JB	DATE 08NOV10
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY SN	APPROVED BY SN
FIRST PRODUCT USED ON	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602229	WIRING DIAGRAM, ICONTROL, PRODIGY
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1105055 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: N/A	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING

1105055

SEE CAN BOARD & DIGITAL I/O MODULE DETAILS FOR WIRING

KEYPAD PANEL 1032267

ETH1 ETH0

FERRITE BEAD 185067A

TO 3/4" CONDUIT

CONTROL UNIT POWER HARNESS 1103114 (POWER CORD)

(BUNDLE WITH OTHER AC WIRES)

FROM SUB–PANEL TERMINAL BLOCK (SEE SHEET 1)

TO PRIMARY DUAL GUN DRIVER CARD CAGE (SEE SHEET 1)

BLUE
DRAIN
WHT/BLU

CAN104–DN
CONTEMPORARY CONTROLS
PC104 CAN BOARD

FROM 24 CH DIGITAL INPUT MODULE (SEE SHEET 2)

50 COND. DIGITAL I/O HARNESS

ADVANTECH #PCM–3724

BLACK
WHITE
BROWN
BLUE

AUXILIARY CONTACT BLOCK

MAIN CONTACT BLOCK

24 14 23 13

FROM SUB–PANEL TERMINAL BLOCK & FILTERS (SEE SHEET 1)

iCONTROL®
DOOR & BEZEL

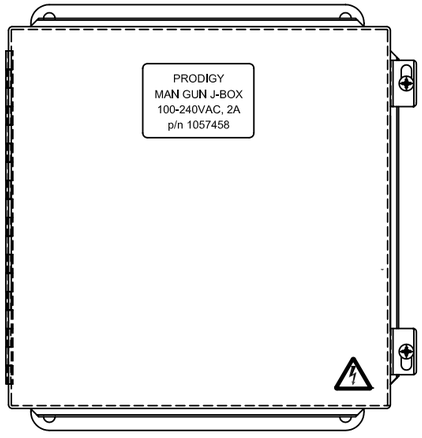
CRITICAL
No revisions permitted without approval of the proper agency

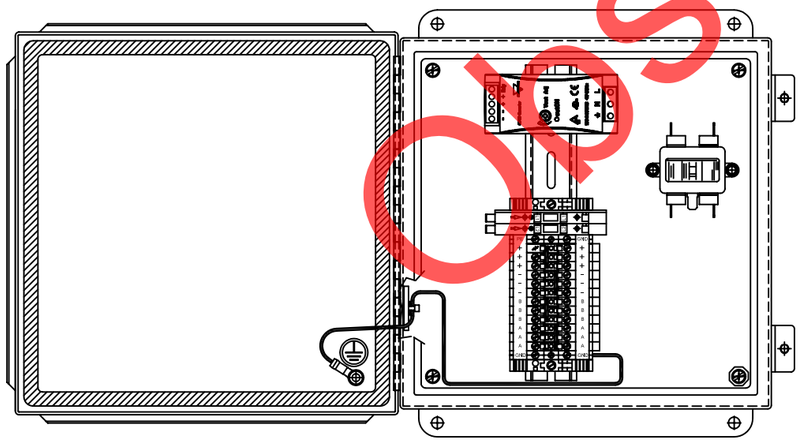
	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY JB	DATE 08NOV10
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY SN	APPROVED BY SN
FIRST PRODUCT USED ON ICONTROL	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602229	WIRING DIAGRAM, ICONTROL PRODIGY
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1105055 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: 3/4	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 5 / 5

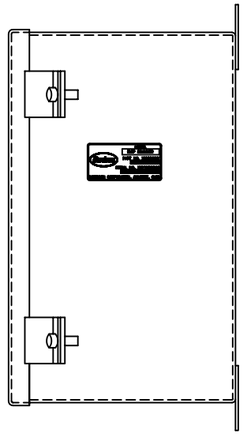
SCR,HEX,SELF TAP,SLTD,8-32X.50,TYPE T,Z

NOTICE	THIS DRAWING IS NORDSON PROPERTY,CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

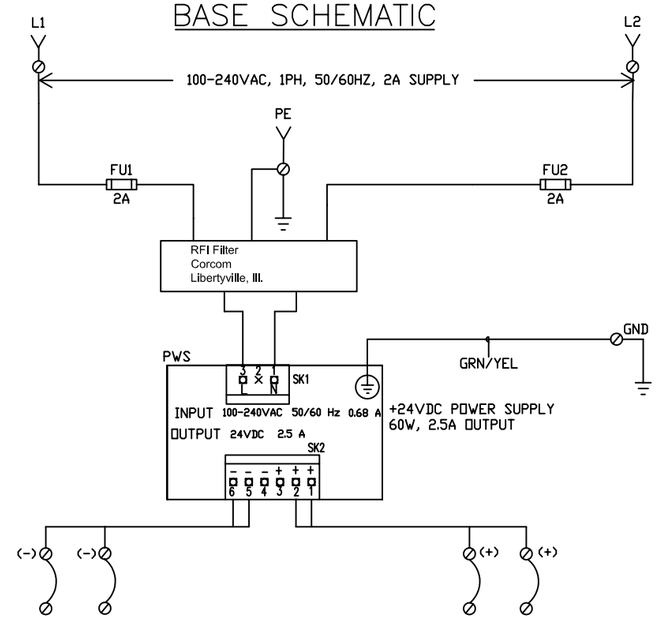
ITEM	DESIGNATION	MFG PART NO.	DESCRIPTION	QTY	MFG	NORDSON PART NO.
0			REF DWG,J-BOX,MNL GUN INTFC,PRODIGY	0		1082783
1		A-10106CH	ENCLOSURE,CONT. HINGE,10 X 10 X 6,STEEL	1	HOFFMAN OR EQUIV.	1071497
2			LABEL SET,J-BOX,MNL GUN INTFC,PRODIGY	1	NORDSON CORP	1082778
3			TAG,WARNING,ELECT SHOCK HAZARD,1.00x.88	1		1075692
4			LABEL,IDENTIFICATION,1.00 X 2.00	1		1005678
5		A10P10	PANEL,8.75 X 8.88,FOR 10X10 ENCLOSURE	1	HOFFMAN ENGINEERING CO.	1071498
6		0514500000	TBACCY,DIN,RAIL,SLOT,35x2M-LG	.22 M	WEIDMULLER	239214
7			SCR,HEX,SELF-TAP,10-32X.500,Z	2		981137
8			WASHER,LK,E,INT,#10,STL,ZN	2		983124
9		851-10/007	FILTER,LINE,RFI,POWER,10A	1	QUALTEK ELECT CORP	334805
10		SPD24601	POWER SUPPLY,DINRAIL MT,60W,24VDC	1	CARLO GAVAZZI,INC	1083048
11			SCR,HEX,SELF TAP,SLTD,8-32X.50,TYPE T,Z	2		1083981
12			WASHER,LK,E,EXT,#8,STL,ZN	2		983110
13		1492-EAJ35	ANCHOR,END	2	ALLEN BRADLEY	306318
14		1492-N37	END,PLATE,AB FUSE	1	ALLEN BRADLEY	341367
15		1492-H6	FUSE HOLDER,DIN RAIL,1/4" X 1-1/4" FUSES	2	ALLEN BRADLEY	341366
16		MDL-1-R	FUSE,2 AMP,SLOBLO,250V,3AG,313	2	BUSSMANN	939132
17		1492-JG4	TERMINAL BLK,GND,GRN/YEL,30-12 AWG,J4	2	ALLEN BRADLEY	1075665
18		1492-CJLJ6	JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN	2	ALLEN BRADLEY	1078531
19		1492-J4	TERMINAL BLOCK,GRAY,IEC,22-10 AWG,J4	12	ALLEN BRADLEY	1075583
20			WIRE,VINYL,14AWG,GREEN W/YELLOW	3		931191
21			TERMINAL,RINGTONG,INS,16-14,10	1		933054
22			NUT,HEX,MACH,#10-32,BRASS	2		984129
23			WASHER,LK,E,SPT,#10,STL,NI	1		983120
24			WASHER,FLT,E,.203X.406X.040,BR	1		983021
25			WIRE,105C,18GA,BLUE,600V	2.2		335174
26			WIRE,VINYL,18AWG,RED	2		931170
27			STRAP,CABLE,.875DIA	3		939110
28			MOUNT,CABLE STRAP	1		242837
29			TERMINAL,PUSH ON,INS,250,22-18	4		933162
30			QUIKCONN,INS,FEM,.250"X.032",14-16AWG	1		1049966
31			LABEL SET,PANEL WIRING FOR 1057458	1		1083025
32			LABEL,BLANK,3.00X5.00	1		603348
33			BOX,HANDGUN,12.75X12.0X7.0	1		603149







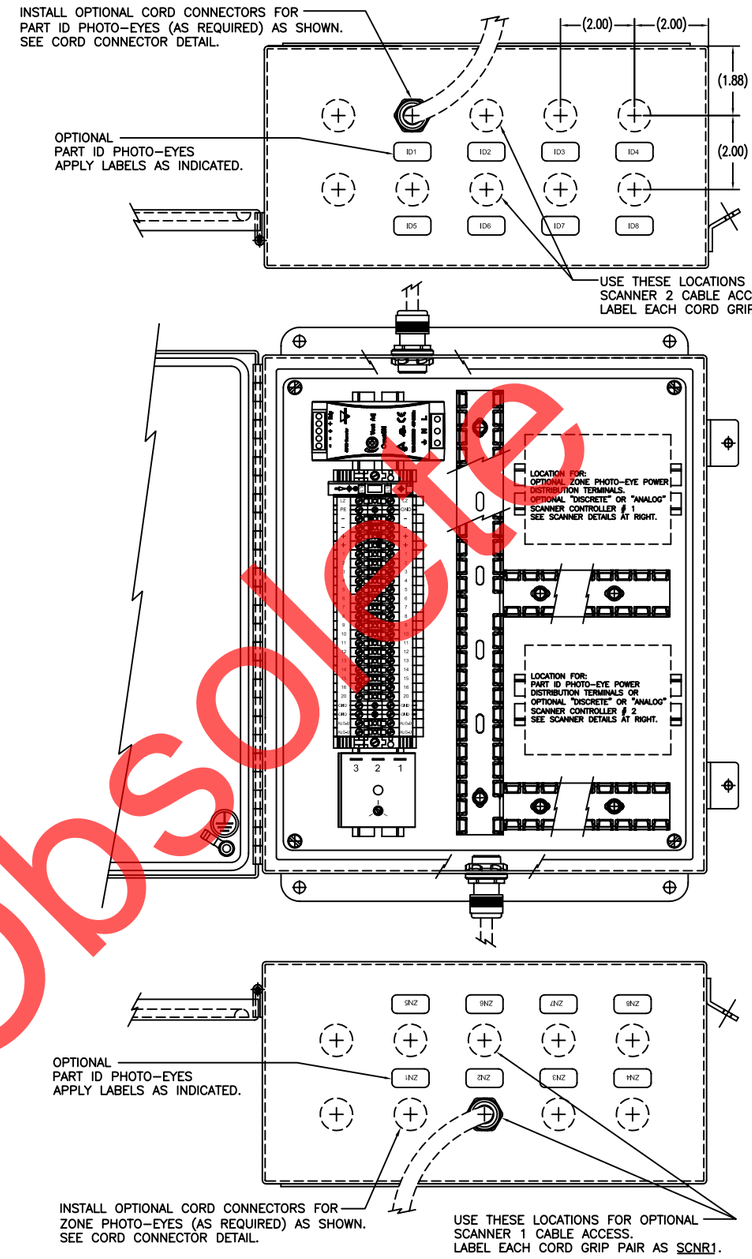
BASE SCHEMATIC



	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY SGN	DATE 28APR04
NEXT ASSEMBLY	MACHINED SURFACES 125 µA	CHECKED BY SGN	APPROVED BY SGN
FIRST PRODUCT USED ON	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE37267	JUNCTION BOX, MAN GUN INTERFACE, PRODIGY
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1057458 REV. A05
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: 1:2	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 1 / 1

ITEM	DESIGNATION	MFG PART NO.	DESCRIPTION	QTY	MFG	NORDSON PART NO.	
			[ASSEMBLY BOM]				
0	X		REF DWG ASSY,JUNCTION BOX,PHOTO-EYE,30W	1		1082005	
1	X	832R8	ENCLOSURE,CONT HNG,14X12X6,W/KNOCKOUTS	1	HOFFMAN	1081440	
2	X	A-14P12	PANEL,12.75 X 10.88,FOR 14X12 ENCLOSURE	1	HOFFMAN	1057271	
3	X	0514500000	TBACCY,DIN,RAIL,SLOT,35X2M-LG	.6M	WEIDMULLER,INC	239214	
4	X	F1X3LG6	WIREDUCT, 1 X 3,PVC,GRAY,SLOTTED	1	PANDUIT	1090158	
5	X	C1LG6	COVER, 1	2	PANDUIT	1046394	
6	X		SCR,HEX,SELF TAP,10-32X .500,Z	12		981137	
7	X		WASHER,LK,E,INT,#10,STL,ZN	6		983124	
8	X	1492-J4	TERMINAL BLOCK,GRAY,IEC,22-10 AWG,J4	24	ALLEN BRADLEY	1075583	
9	X	1492-JG4	TERMINAL BLK,GND,GRN/YEL,30-12 AWG,JG4	3	ALLEN BRADLEY	1075665	
10	X	1492-EBJ3	BARRIER,TCACCY,END,DIN,GRAY,J SERIES	1	ALLEN BRADLEY	1075584	
11	X	1492-EAJ35	ANCHOR,END	2	ALLEN BRADLEY	306318	
12	X	SPD24301	POWER SUPPLY,DINRAIL MT,30W,24-28VDC	1	CARLO GAVAZZI,INC	1080749	
13	X	1492-H6	FUSE HOLDER,DINRAIL,1/4" X 1-1/4 FUSES	1	ALLEN BRADLEY	341366	
14	X	1492-N37	END,PLATE,AB FUSE	1	ALLEN BRADLEY	341367	
15	X	MDL-1-R	FUSE,2AMP,SLOBLO,250V,3AG,313	1	BUSSMAN	939132	
16	X		LABEL SET,BASE,PHOTOEYE JUNCTION BOX	1		1082023	
17	X	1492-CJLJ6-10	JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN	1	ALLEN BRADLEY	1078531	
18	X	8002-150	TAG,WARNING,ELECT SHOCK HAZARD,1.00x.88	1	SAFETY LABEL SOLUTIONS	1075692	
19	X		LABEL SET,PANEL WIRING FOR 1035897	1		1083081	
20	X		WIRE,VINYL,18AWG,RED	1		931170	
21	X		WIRE,VINYL,18AWG,WHITE	1		939888	
22	X		WIRE,105C,18GA,BLUE,600V	2.5		335174	
23	X		WIRE,VINYL,14AWG,GREEN W/YELLOW	4		931191	
24	X		STRAP,CABLE,.875DIA	2		939110	
25	X		MOUNT,CABLE STRAP	1		242837	
26	X		NUT,HEX,MACH,#10-32,BRASS	2		984129	
27	X		WASHER,LK,E,SPT,#10,STL,NI	1		983120	
28	X		WASHER,FLT,E,.203X.406X.040,BR	1		983021	
29	X		LABEL,IDENTIFICATION,1.00 X 2.00	1		1005678	
30	X		TERMINAL,RINGTONG,INS,16-14,10	1		933054	
31	X		BOX,CST-1/HEATER,HM 9	1		603124	
32	X		LABEL,BLANK,3.00X5.00	1		603348	
33	X		BOX,19 3/8X17 3/8 X 8 3/4	1		603054	
34			PREFIX RESERVED	1		000000	
35			[OPTIONAL ZONE PHOTO-EYE BOM]				
36	X	1492-J4	TERMINAL BLOCK,GRAY,IEC,22-10 AWG,J4	8	ALLEN BRADLEY	1075583	
37	X	1492-JG4	TERMINAL BLK,GND,GRN/YEL,30-12 AWG,JG4	4	ALLEN BRADLEY	1075665	
38	X	1492-EBJ3	BARRIER,TCACCY,END,DIN,GRAY,J SERIES	1	ALLEN BRADLEY	1075584	
39	X	1492-EAJ35	ANCHOR,END	2	ALLEN BRADLEY	306318	
40	X		LABEL SET,PHOTOEYE,ZONE	1		1082273	
41	X	1492-CJLJ6-10	JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN	1	ALLEN BRADLEY	1078531	
42	X		WIRE,105C,18GA,BLUE,600V	2		335174	
43	X		CONNECTOR,STRAIN RELIEF,1/2NPT	A/R		972808	**
44	X		SEAL,CONDUIT FITTING,1/2,BLUE	A/R		939122	**
45	X		NUT,LOCK,1/2 CONDUIT	A/R		984526	**
46			[OPTIONAL PART ID PHOTO-EYE BOM]				
47	X	1492-J4	TERMINAL BLOCK,GRAY,IEC,22-10 AWG,J4	8	ALLEN BRADLEY	1075583	
48	X	1492-JG4	TERMINAL BLK,GND,GRN/YEL,30-12 AWG,JG4	4	ALLEN BRADLEY	1075665	
49	X	1492-EBJ3	BARRIER,TCACCY,END,DIN,GRAY,J SERIES	1	ALLEN BRADLEY	1075584	
50	X	1492-EAJ35	ANCHOR,END	2	ALLEN BRADLEY	306318	
51	X		LABEL SET,PHOTOEYE,PART ID	1		1082270	
52	X	1492-CJLJ6-10	JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN	1	ALLEN BRADLEY	1078531	
53	X		WIRE,105C,18GA,BLUE,600V	1.5		335174	
54	X		CONNECTOR,STRAIN RELIEF,1/2NPT	A/R		972808	***
55	X		SEAL,CONDUIT FITTING,1/2,BLUE	A/R		939122	***
56	X		NUT,LOCK,1/2 CONDUIT	A/R		984526	***
57			[OPTIONAL SCANNER 1 BOM]				
58	X	60316	CONTROLLER,MINI-ARRAY,DISCRETE	A/R	BANNER ENG CORP	321159	**
59	X	60317	CONTROLLER,MINI-ARRAY,ANALOG	A/R	BANNER ENG CORP	321158	**
60	X		LABEL SET,PHOTOEYE,SCANNER 1	1		1082271	
61	X		WIRE,105C,18GA,BLUE,600V	A/R		335174	*
62	X		WIRE,VINYL,14AWG,GREN W/YELLOW	1		931191	
63	X		STRAP,CABLE,.875DIA	1		939110	
64	X		PREFIX RESERVED	1		000000	
65	X		CONNECTOR,STRAIN RELIEF,1/2NPT	2		972808	
66	X		SEAL,CONDUIT FITTING,1/2.BLUE	2		939122	
67	X		NUT,LOCK,1/2 CONDUIT	2		984526	
68	X	QDC-515C	CABLE,SCANNER,15FT	A/R	BANNER ENG CORP	321155	***
69	X	QDC-525C	CABLE,SCANNER,25FT	A/R	BANNER ENG CORP	321156	***
70	X	QDC-550C	CABLE,SCANNER,50FT	A/R	BANNER ENG CORP	321157	***
71			PREFIX RESERVED	1		000000	
72			[OPTIONAL SCANNER 2 BOM]				
73	X	60316	CONTROLLER,MINI-ARRAY,DISCRETE	A/R	BANNER ENG CORP	321159	**
74	X	60317	CONTROLLER,MINI-ARRAY,ANALOG	A/R	BANNER ENG CORP	321158	**
75	X		LABEL SET,PHOTOEYE,SCANNER 2	1		1082272	
76	X		WIRE,105C,18GA,BLUE,600V	A/R		335174	*
77	X		WIRE,VINYL,14AWG,GREN W/YELLOW	1		931191	
78	X		PREFIX RESERVED	1		000000	
79	X		CONNECTOR,STRAIN RELIEF,1/2NPT	2		972808	
80	X		SEAL,CONDUIT FITTING,1/2.BLUE	2		939122	
81	X		NUT,LOCK,1/2 CONDUIT	2		984526	
82	X	QDC-515C	CABLE,SCANNER,15FT	A/R	BANNER ENG CORP	321155	***
83	X	QDC-525C	CABLE,SCANNER,25FT	A/R	BANNER ENG CORP	321156	***
84	X	QDC-550C	CABLE,SCANNER,50FT	A/R	BANNER ENG CORP	321157	***
85			PREFIX RESERVED	1		000000	
86			[OPTIONAL ENCODER TIMER BOM]				
87	X	KSD3330A	MODULE,TIMER,RECYCLING	1	ASEA-BROWN-BOVERI,INC	1082239	
88	X	P1023-20	ADAPTER,DIN RAIL, TIMER	1	ASEA-BROWN-BOVERI,INC	1082238	
89	X		WIRE,105c,18GA,BLUE,600V	3		335174	
90	X		TERMINAL,PUSH ON,INS,250,22-18,12245-2	3		933162	
91			PREFIX RESERVED	1		000000A	
92			[OPTIONAL CONNECTORS BOM] (FOR CONN OPTION, SEE SHEET 4)				
93	X	MIN-5MR-3	RECEPTACLE,5 PIN,MALE,16 AWG,36 IN LEADS	1	MENCON CORP	1087623	
94	X		SEAL,CONDUIT FITTING,1/2,BLUE	2		939122	**
95	X		NUT,LOCK,1/2 CONDUIT	2		984526	**
96	X		STRAP,CABLE,.875 DIA	6		939110	
97	X	FIT-221-1/8 BLACK	TUBING,HEAT-SHRINK,.125	3 IN	ALPHA WIRE	931315	
98	X	SB-875-11	BUSHING,SNAP,11/16 ID	1	HEYCO	900718	
99	X	09 30 024 0301	CONNHOUSING,HAN,RECT,SHELL-ONLY	1	HARTING	1055320	
100	X		SPACER,CONNECTOR,24 POSITION	1		1091712	
101	X	09 30 000 9994	GASKET,CONNECTOR,24 POSITION	1	HARTING	1091714	
102	X		SCR,PAN,SLT,M4X25,ZN	4		982097	
103	X		WASHER,FLT,.203X.309X.04,NYLON	4		983038	
104	X		WASHER,LK,M,EXT,M4,STL,ZN	4		983421	
105	X		NUT,HEX,M4,STL,ZN	4		984715	
106	X	09 33 024 2701	INSERT,CONN,FEMALE,HARTING,09330242701	1	HARTING	1091711	
107	X	6309	JKTDCABL,25-CONN,SHIELD,24AWG	1 FT	ALPHA WIRE	1033952	
108	X		WIRE,VINYL,14AWG,GREEN W/YELLOW	1 FT		931191	
109	X		LABEL SET,CONN OPTION,FOR 1035897	1		1091716	
110	X	1R5000A20F020	RECEPTACLE,CORD,5 PIN MINI,16 GA,300V,FEM	1	BRAD HARRISON	1071818	
111							

* - QUANTITIES DETERMINED BY ORDER REQUIREMENTS. A/R = AS REQUIRED



TERMINAL BLOCK LAYOUT

L2
PE
-
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+
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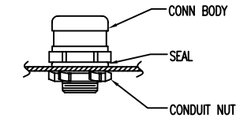
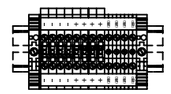
GND
GND
ALG-D
ALG-U



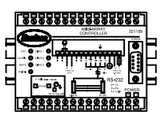
CORD CONNECTOR DETAIL

SCANNER DETAILS

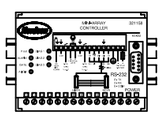
OPTIONAL PHOTOEYES POWER DISTRIBUTION.



OPTIONAL "DISCRETE" OUTPUT SCANNER, CONTROLLER



OPTIONAL "ANALOG" OUTPUT SCANNER, CONTROLLER



	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY DRJ	DATE 29OCT02
NEXT ASSEMBLY	MACHINED SURFACES 125 µM	CHECKED BY RF	APPROVED BY BL
FIRST PRODUCT USED ON iCONTROL	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE0851	REF DWG, JUNCTION BOX, PHOTOEYE,30W
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1035897 REV. B12
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: 1:2	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 1 / 4

(A11) PEJB INTERNAL WIRING AND INSTRUCTION

(A07) NOTES:

1. TO BE PACKAGED IN CARTON WITH ADEQUATE PROTECTION AND LABELED WITH NORDSON PART NUMBER AND CURRENT REVISION. AFFIX NORDSON TRADEMARK LABELS (ITEM 120) POSITIONED TO COVER ANY EXISTING VENDOR MARKINGS ON CARTON.

(A05) 2. ITEMS SUPPLIED BY NORDSON.
- INSTALL AND WIRE OPTIONAL BANNER SCANNER(S) AS INDICATED, AND AS SPECIFIED PER ORDER. IF DUAL SCANNERS, THEN LABEL EACH SCANNER AS INDICATED.
- ITEM 131 OR 132 PROVIDED, NOT BOTH. SEE DRAWING SHEET 2 FOR WIRING DETAIL.
- IF SINGLE SCANNER, THEN CABLES TO BE WIRED THROUGH CORD GRIP CONNECTORS TO TERMINALS S4, S5, S6, S7, & S8.
- IF DUAL SCANNERS, THEN CABLES TO BE WIRED THROUGH LABELED CORD GRIP CONNECTORS TO SCANNER TERMINALS 4, 5, 6, 7, & 8. LABEL AS INDICATED ON SHEET 1.

(A05) 3. WIRE DEVICES AS INDICATED IN BASE SCHEMATIC.

(A05) 4. LOCATE AND LABEL OPTIONAL PHOTOEYE AND/OR OPTIONAL SCANNER CORD GRIP CONNECTORS AS INDICATED ON DRAWING SHEET 1.

(B03) 5. SCANNER #1 CAN BE EITHER AN "ANALOG" OR "DISCRETE" TYPE CONTROLLER, AS SPECIFIED PER ORDER. IF "ANALOG" IS REQUIRED, THEN THERE WILL BE NO "ZONE ID" DEVICE OR WIRING.

(A09) (A07) 6. IF DUAL SCANNERS, ONE AS "ZONE ID" (OR "ANALOG") AND ONE AS "PART ID", THEN SCANNER #2 IS ALWAYS THE "PART ID" SCANNER.

7. IF DUAL SCANNERS, BOTH AS "ZONE ID", THEN SCANNER #1 IS FOR UPPER ZONES AND SCANNER #2 IS FOR LOWER ZONES.
- WIRING FROM EACH SCANNER TO PANEL TERMINALS BASED ON ORDER SPECIFICATION. EACH SCANNERS WIRING NOT TO OVERLAP AT PANEL TERMINALS BUT ALWAYS SEQUENCED AS SCANNER #1 OUTPUTS FIRST, FOLLOWED BY SCANNER #2 OUTPUTS.
- TERMINAL WIRING FORMULA:
  SCANNER #1 TERMINALS 16 TO [(16 + "n") – 1], CONNECTED TO PANEL TERMINALS 1 TO "n", WHERE "n" = NUMBER OF SPECIFIED ZONES FOR UPPER SCANNER.
  SCANNER #2 TERMINALS 16 TO [(16 + "nn") – 1], CONNECTED TO PANEL TERMINALS ("n" + 1) TO ("n" + "nn"), WHERE "nn" = NUMBER OF SPECIFIED ZONES FOR LOWER SCANNER.
- FOR EXAMPLE:
  FOR UPPER SCANNER (SCNR1) ORDER SPECIFIED AS 4 ZONES, THEN WIRE SCANNER #1 TERMINALS 16, 17, 18, & 19 TO PANEL TERMINALS 1, 2, 3, & 4.
  FOR LOWER SCANNER (SCNR2) ORDER SPECIFIED AS 3 ZONES, THEN WIRE SCANNER #2 TERMINALS 16, 17, & 18 TO PANEL TERMINALS 5, 6, & 7.

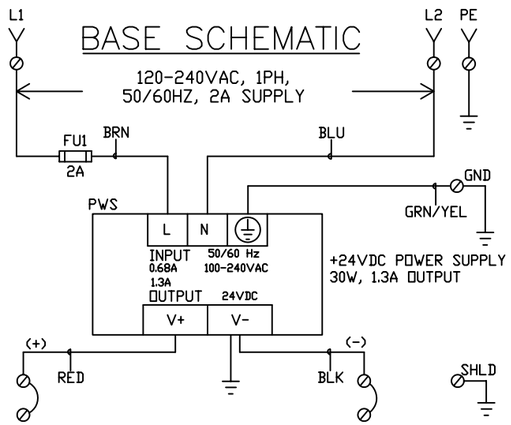
(B04) 8. SCANNER PROGRAMMING:
- IF ONE "DISCRETE" SCANNER IS SPECIFIED FOR "ZONE ID" ONLY, THEN DOWNLOAD APPLICABLE PROGRAM TO SCANNER.
- IF ONE "DISCRETE" SCANNER IS SPECIFIED FOR "PART ID" ONLY, THEN DOWNLOAD THE 6" X 3/4RES. X 8 ZONE PROGRAM (FILE NAME "06-4-id8.PSF") FOR A 6" SCANNER. IF OTHER THAN 6" LENGTH, THEN GET CUSTOM PROGRAM FROM NORDSON ENGINEERING.
- IF ONE "DISCRETE" SCANNER FOR BOTH "ZONE ID" AND "PART ID", THEN CUSTOM PROGRAMMING REQUIRED BY NORDSON ENGINEERING.
- IF DUAL "DISCRETE" "ZONE ID" SCANNERS, ONE FOR UPPER "ZONE ID" AND ONE FOR LOWER "ZONE ID", THEN OUTPUT WIRING PER NOTE 6, AND DOWNLOAD APPLICABLE (LENGTH / RESOLUTION / # OF ZONES) PROGRAM TO EACH CONTROLLER.
- IF ONE "ANALOG" SCANNER IS SPECIFIED, THEN DOWNLOAD THE ANALOG CONTROLLER PROGRAM (FILE NAME: ALG_2OUT.PSF). THIS PROGRAM APPLIES TO ALL LENGTHS OF SCANNER.

(B07) 9. TIMER MODULE IS "NEGATIVE SWITCHING" TYPE AND MUST ONLY BE CONNECTED TO A "SINKING" ENCODER INPUT.

10. IMPRINT LABEL WITH THE FOLLOWING INFORMATION AND AFFIX TO THE OUTSIDE OF THE FRONT DOOR (TEXT TO BE .25 HIGH MIN.). FOR CUSTOMIZED VERSIONS OF THIS BOX, ADD SUFFIX "–MOD" TO THE PART NUMBER:

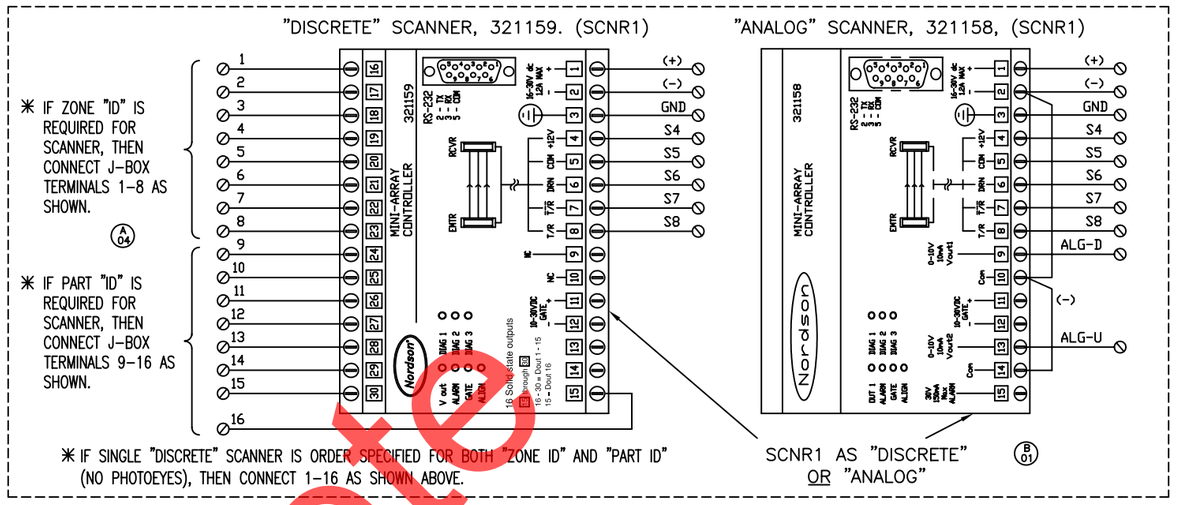
(A01) (A12)
NORDSON CORPORATION
iCONTROL PART I.D
120V/1PH/60HZ/.6A
PN 1035897

BASE SCHEMATIC

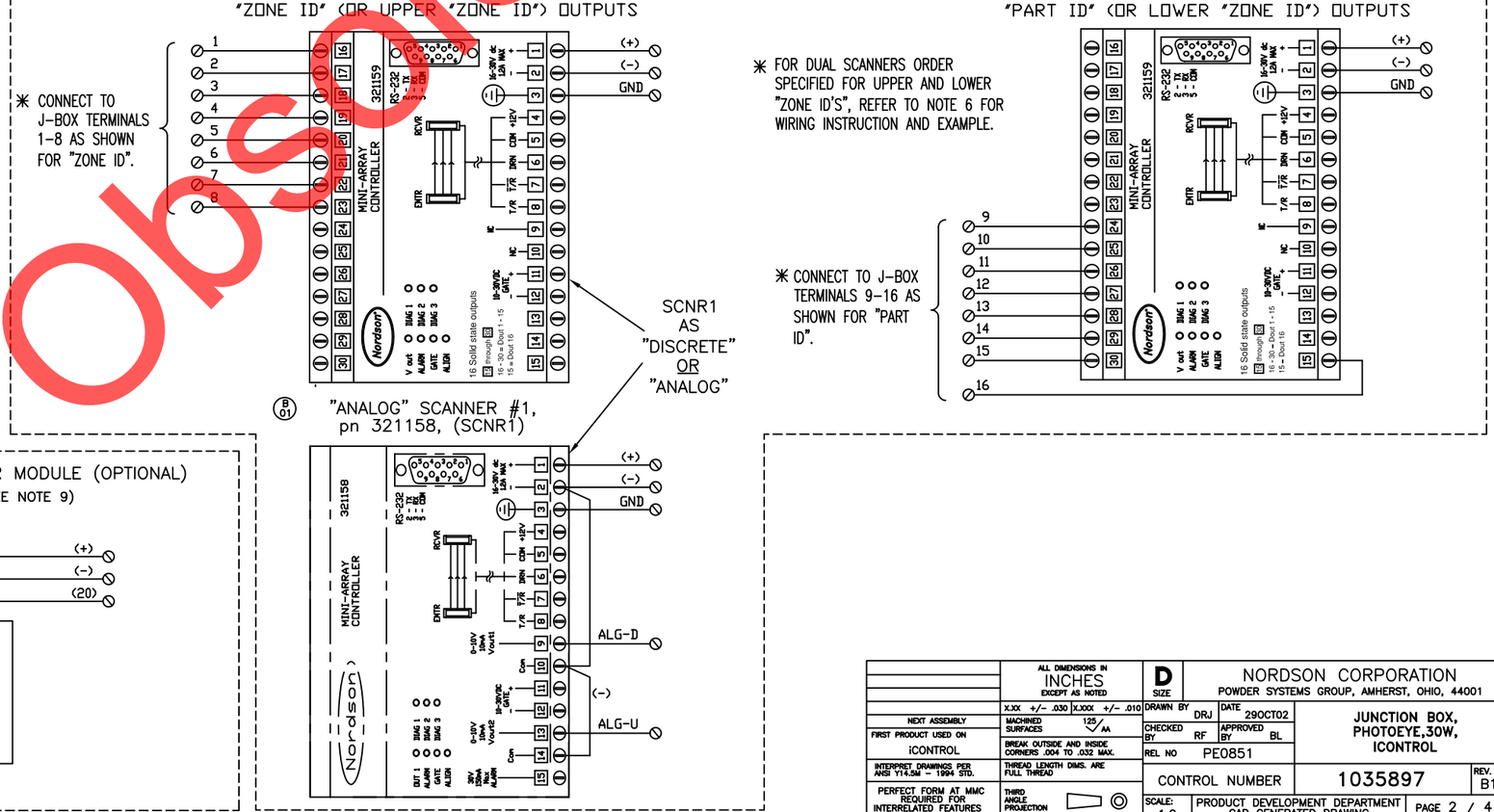


USE GRAY INSULATED WIRE (18 AWG MIN.) FOR ALL DC WIRING OTHER THAN POWER.

SINGLE SCANNER OPTIONS



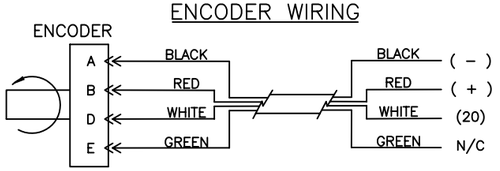
(A10) DUAL SCANNER OPTIONS



	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION, POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY DRJ	DATE 29OCT02
NEXT ASSEMBLY	MACHINED SURFACES 125 µA	CHECKED BY RF	APPROVED BY BL
FIRST PRODUCT USED ON iCONTROL	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE0851	JUNCTION BOX, PHOTOEYE,30W, ICONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1035897 REV. B12
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: 1:2	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING — PAGE 2 / 4

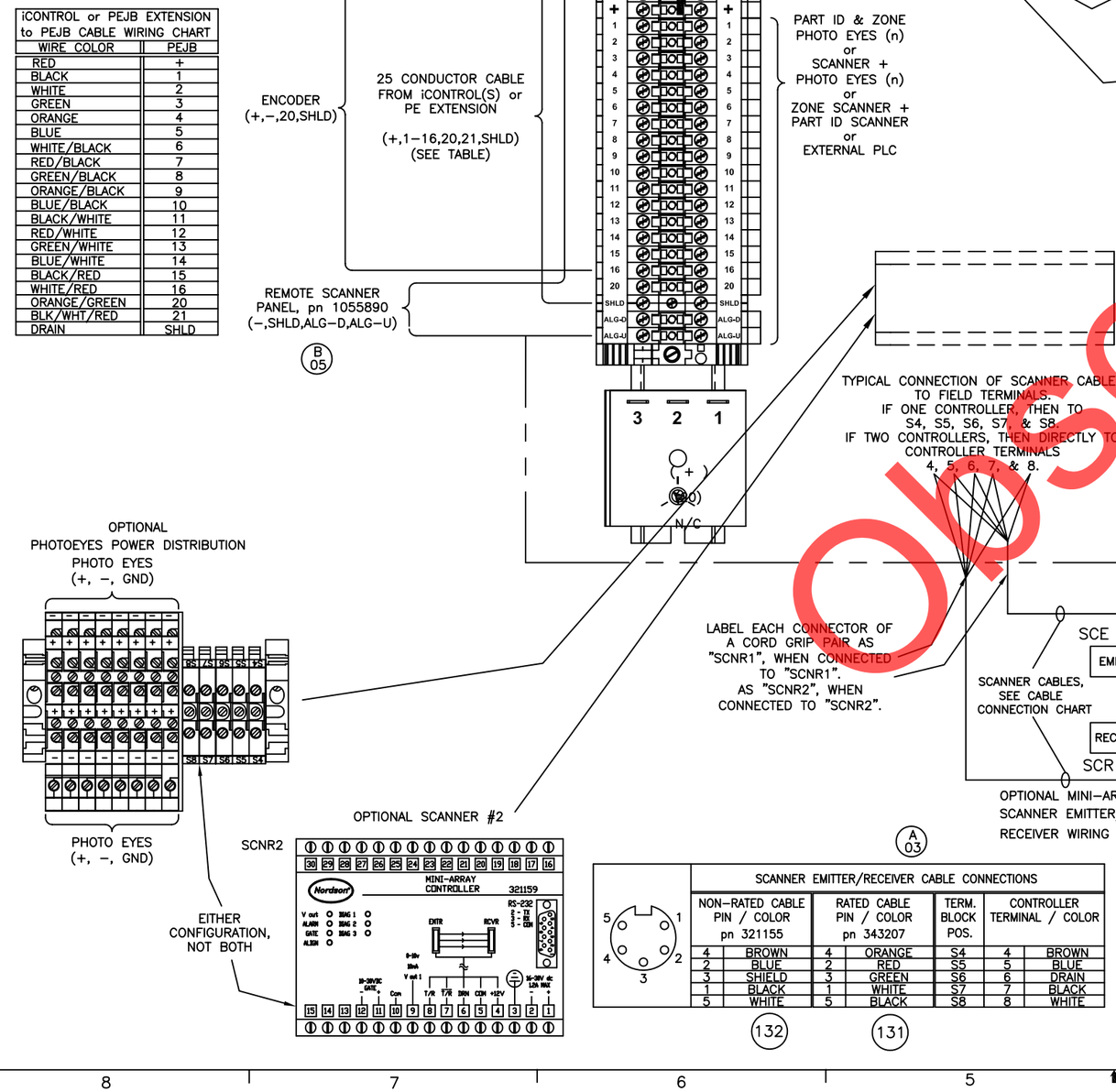
FIELD WIRING CONNECTIONS TO PEJB

ENCODER WIRING



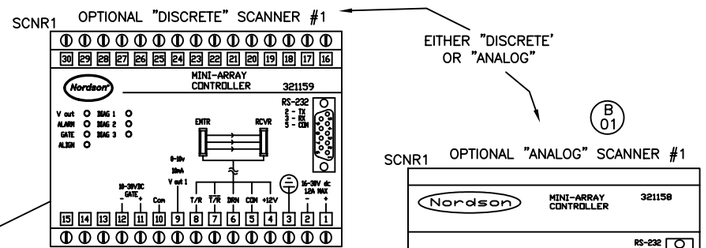
25 CONDUCTOR WIRING

iCONTROL or PEJB EXTENSION to PEJB CABLE WIRING CHART	
WIRE COLOR	PEJB
RED	+
BLACK	1
WHITE	2
GREEN	3
ORANGE	4
BLUE	5
WHITE/BLACK	6
RED/BLACK	7
GREEN/BLACK	8
ORANGE/BLACK	9
BLUE/BLACK	10
BLACK/WHITE	11
RED/WHITE	12
GREEN/WHITE	13
BLUE/WHITE	14
BLACK/RED	15
WHITE/RED	16
ORANGE/GREEN	20
BLK/WHT/RED	21
DRAIN	SHLD

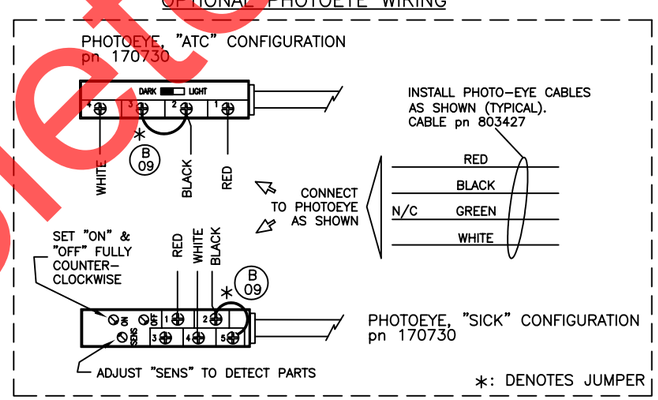


SCANNER EMITTER/RECEIVER CABLE CONNECTIONS							
NON–RATED CABLE PIN / COLOR pn 321155		RATED CABLE PIN / COLOR pn 343207		TERM. BLOCK POS.	CONTROLLER TERMINAL / COLOR	
4	BROWN	4	ORANGE	S4	4	BROWN
2	BLUE	2	RED	S5	5	BLUE
3	SHIELD	3	GREEN	S6	6	DRAIN
1	BLACK	1	WHITE	S7	7	BLACK
5	WHITE	5	BLACK	S8	8	WHITE

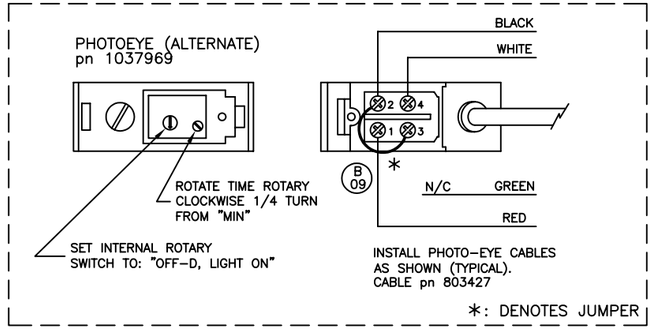
(132) (131)



OPTIONAL PHOTOEYE WIRING

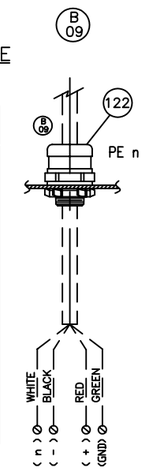


OPTIONAL ALTERNATE PHOTOEYE WIRING



DETAIL "E" OPTIONAL PHOTOEYE CABLE WIRING

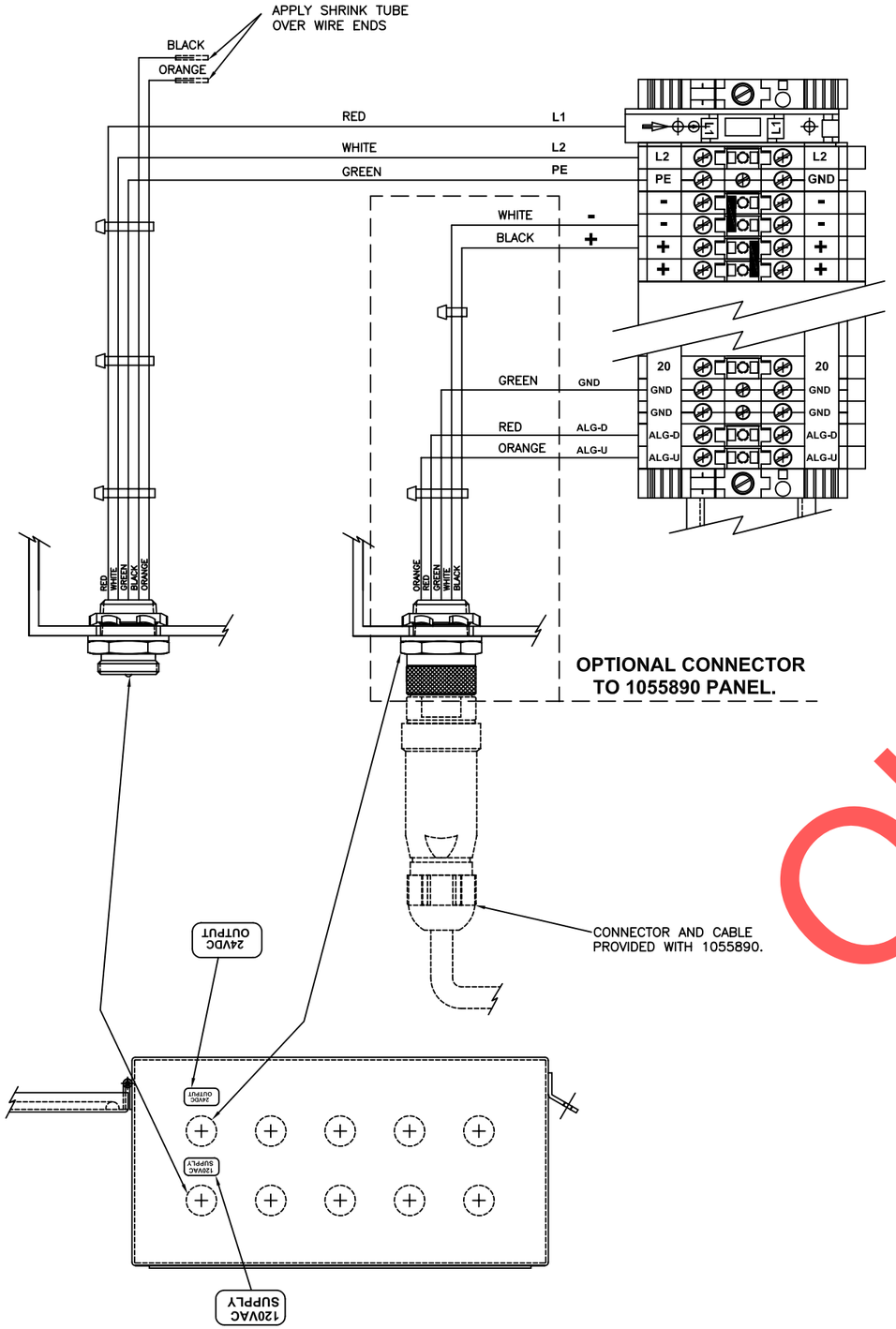
RECEPTACLE WIRING CHART	
PE n	(n)
ZONE 1	1
ZONE 2	2
ZONE 3	3
ZONE 4	4
ZONE 5	5
ZONE 6	6
ZONE 7	7
ZONE 8	8
PART ID 1	9
PART ID 2	10
PART ID 3	11
PART ID 4	12
PART ID 5	13
PART ID 6	14
PART ID 7	15
PART ID 8	16

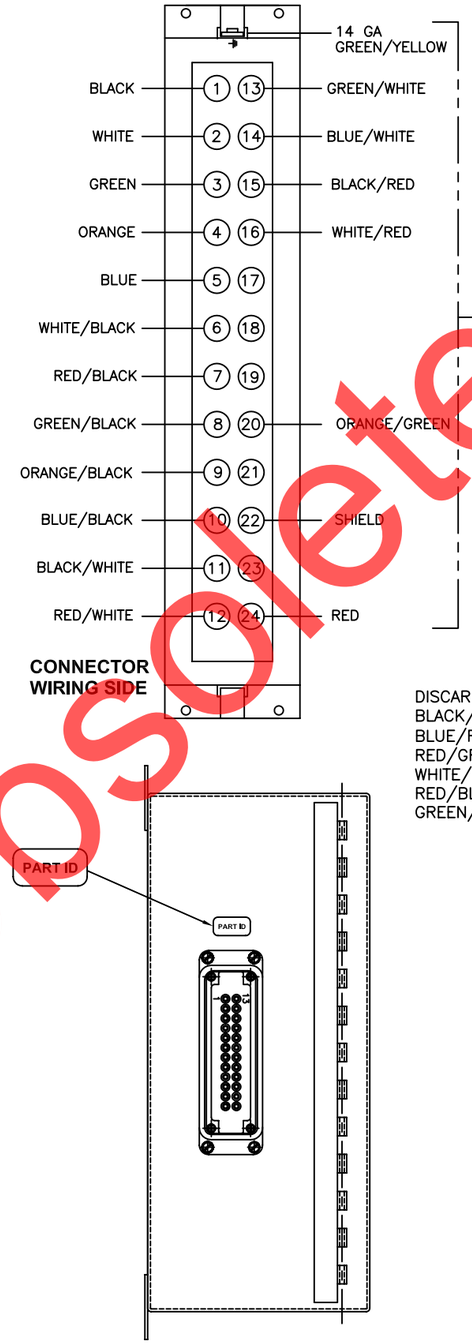


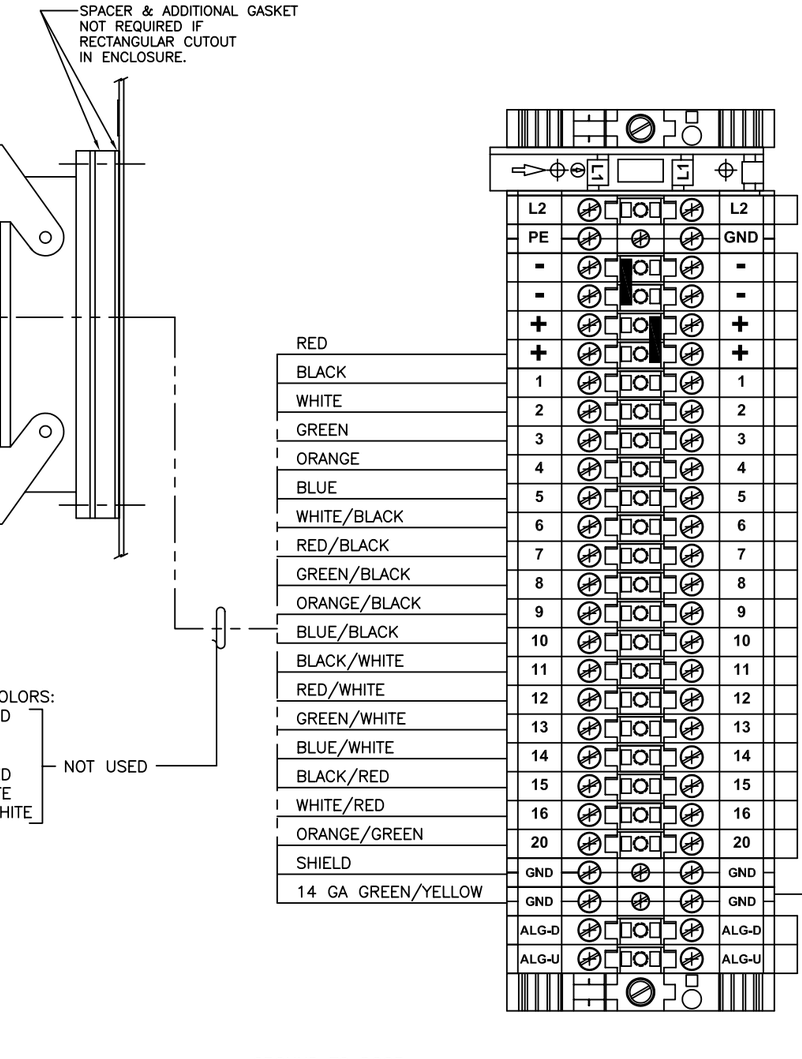
	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001	
	X.XX +/– .030 X.XXX +/– .010	DRAWN BY DRJ	DATE 05NOV02	JUNCTION BOX, PHOTOEYE,30W, ICONTROL
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY RF	APPROVED BY BL	
FIRST PRODUCT USED ON iCONTROL	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE0851		
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1035897	REV. B12
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: FULL	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING	PAGE 3 / 4

A 08

CONNECTORS OPTION





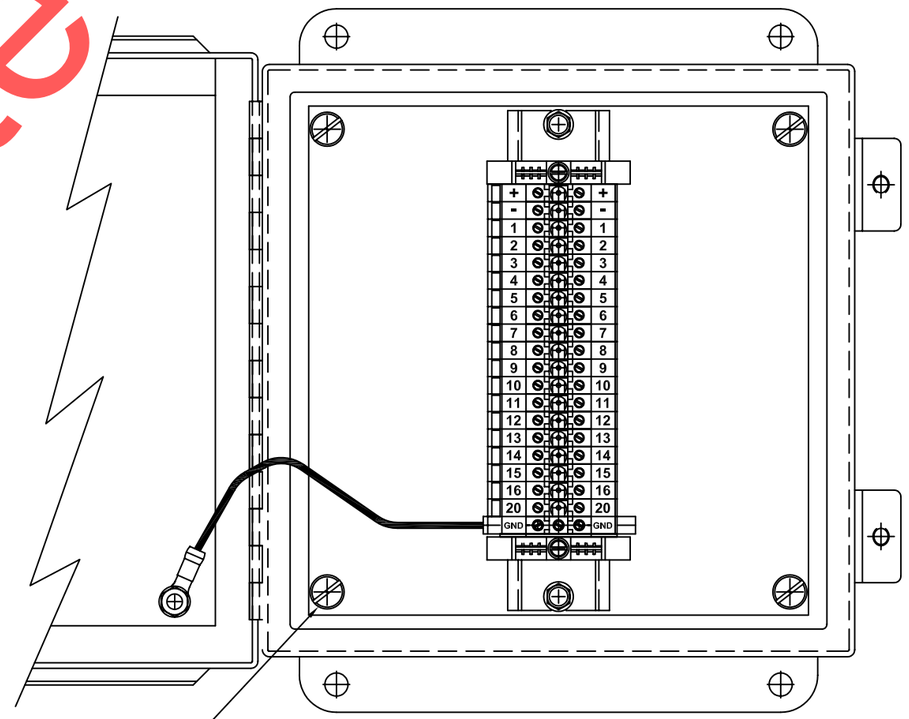


	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY LSM	DATE 25SEP08
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL
FIRST PRODUCT USED ON	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601281	JUNCTION BOX, PHOTOEYE,30W, ICONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1035897 REV. B12
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: FULL	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 4 / 4

ITEM	DESIGNATION	MFG PART NO.	DESCRIPTION	QTY	MFG	NORDSON PART NO.
0			REF DWG,ASSY,EXT J-BOX,iCONTROL	1		1075835
1		A-808CH	ENCLOSURE, CONT HINGE,8x8x4	1	HOFFMAN OR EQUIV.	1056323
2		A8P8	PANEL,6.75 X 6.88,FOR 8X8 ENCLOSURE	1	HOFFMAN ENGINEERING CO.	1056324
3		0514500000	TBACCY,DIN,RAIL,SLOT,35x2M-LG	.17 M	WEIDMULLER	239214
4		1492-EAJ35	ANCHOR,END	2	ALLEN BRADLEY	306318
5		1492-J4	TERMINAL BLK,GRAY,IEC,30-12 AWG,J4	19	ALLEN BRADLEY	1075583
6		1492-JG4	TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4	1	ALLEN BRADLEY	1075665
7			SCR,HEX,SELF TAP,10-32X .500,Z	2		981137
8			WASHER,LK,E,INT,#10,STL,ZN	2		983124
9			LABEL,EXT J-BOX,iCONTROL	1		1075855
10			LABEL,TERMINAL BLOCK,FOR 1035899	2		1076700
11			NUT,HEX,MACH,#10-32,BRASS	2		984129
12			WASHER,FLT,E,.203X.406X.040,BR	1		983021
13			WASHER,LK,E,SPT,#10,STL,NI	1		983120
14			TERMINAL,RINGTONG,INS,16-14,10	1		933054
15			WIRE,VINYL,14AWG,GREEN W/YELLOW	1		931191
16			LABEL,BLANK,3.500X5.00	1		603348
17			CARTON,MISC PARTS	1		602117

25 CONDUCTOR WIRING

iCONTROL or PEJB EXTENSION to PEJB CABLE WIRING CHART	
WIRE COLOR	PEJB
RED	+
BLACK	1
WHITE	2
GREEN	3
ORANGE	4
BLUE	5
WHITE/BLACK	6
RED/BLACK	7
GREEN/BLACK	8
ORANGE/BLACK	9
BLUE/BLACK	10
BLACK/WHITE	11
RED/WHITE	12
GREEN/WHITE	13
BLUE/WHITE	14
BLACK/RED	15
WHITE/RED	16
ORANGE/GREEN	20
DRAIN	GND



NOTES:

1. TO BE PACKAGED WITH ADEQUATE PROTECTION AND LABELED WITH NORDSON PART NUMBER AND CURRENT REVISION.

2. AS AN ALTERNATE, PROVIDE A LABEL WITH THE FOLLOWING INFORMATION AND AFFIX TO THE OUTSIDE OF THE FRONT DOOR.

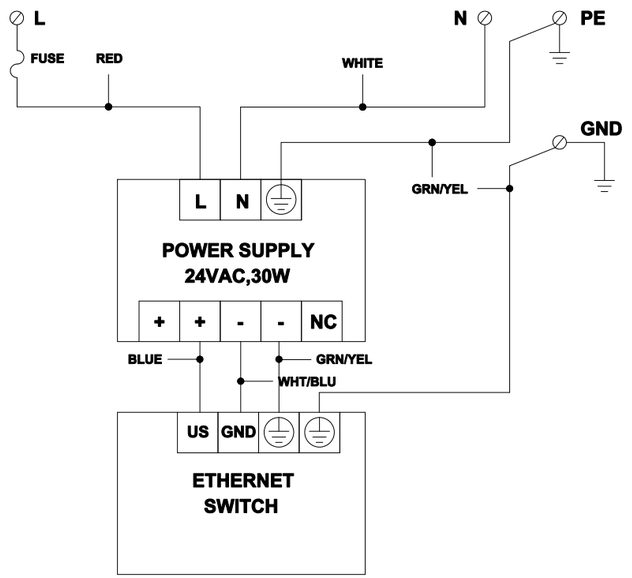
   NORDSON CORPORATION
   iCONTROL PART I.D.
   P/N: 1035899

NEXT ASSEMBLY	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
FIRST PRODUCT USED ON	X.XX +/- .030 X.XXX +/- .010	DRAWN BY DRJ	DATE 29OCT02
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	MACHINED SURFACES 125 µM	CHECKED BY RF	APPROVED BY BL
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE0851	JUNCTION BOX, PE EXTENSION, iCONTROL
	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1035899 REV. A05
	THIRD ANGLE PROJECTION	SCALE: FULL	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 1 / 1

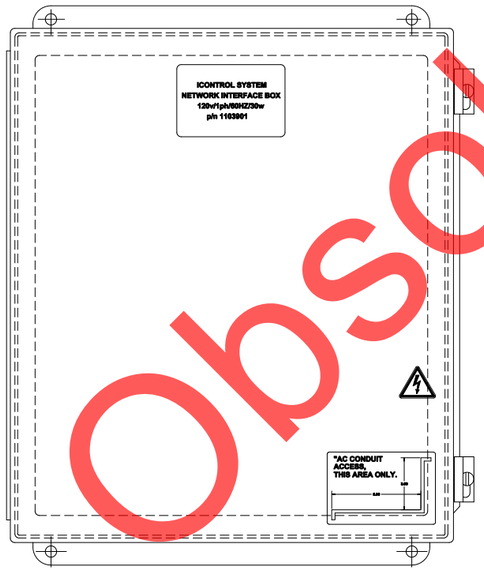
1103901

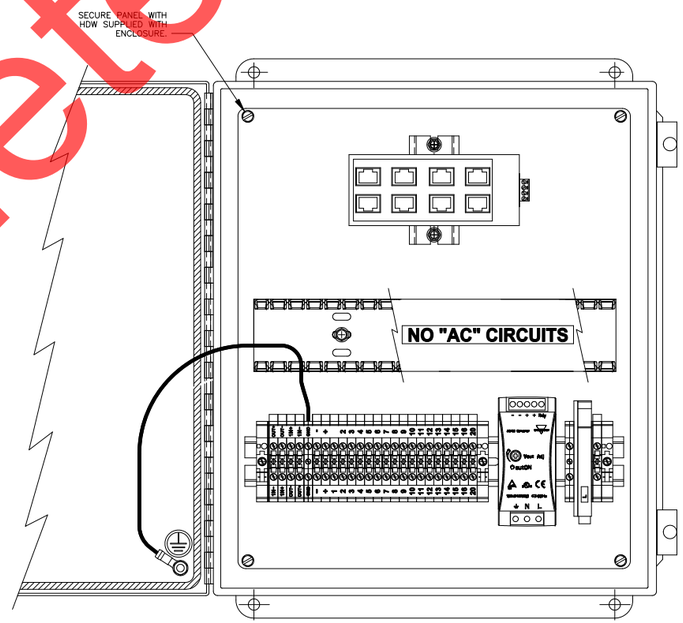
NOTICE THIS DRAWING IS NORDSON PROPERTY,CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

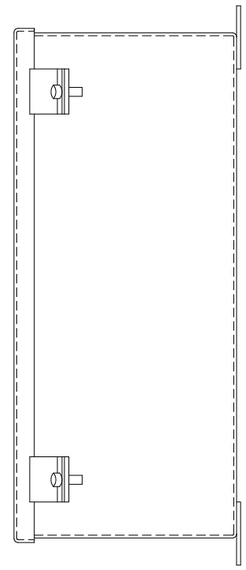
ITEM	DESIGNATION	MFG PART NO.	DESCRIPTION	QTY	MFG	NORDSON PART NO.
0			REF DWG,ASSY,INFC BOX,ETHERNET NTWK	0		1103973
1		A-1412CH	ENCLOSURE, CONT HINGE,14x12x6	1	HOFFMAN	1057270
2		CUSTOM	LABEL SET, ETHERNET NETWORK	1	-----	1078685
3		8002-ISO	TAG,WARNING,ELECT SHOCK HAZARD,1.00x.88	1	SAFTEY LABEL SOLUTIONS	1075692
4		SERIAL NUMBER	LABEL,IDENTIFICATION,1.00 X 2.00	1		1005678
5		A-14P12	PANEL,12.75x10.88,FOR 14x12 ENCLOSURE	1	HOFFMAN	1057271
6			SCR,HEX,SELF TAP,10-32X.500,Z	6		981137
7		0514500000	TBACCY,DIN,RAIL,SLOT,35x2M-LG	.35M	WEIDMULLER,INC	239214
8		E3X2LG6	WIREWAY,3.0W X2.0H X 6FT	.14	PANDUIT	134247
9		CUSTOM	WIRE,TWISTED PAIR,18 AWG,WHT/BLU & BLU	1.0FT		7790169
10		2891929	SWITCH,ETHERNET,8 PORT 10/100	1	PHOENIX	1103899
11		*	THIS PREFIX RESERVED	*	*	*
12		1492-EAJ35	ANCHOR,END	5	ALLEN BRADLEY	306318 A02
13		1492-EBJ3	BARRIER,TBACCY,END,DIN,GRAY,J SERIES	2	ALLEN BRADLEY	1075584
14		1492-J4	TERMINAL BLK,GRAY,IEC,22-10 AWG,JG4	24	ALLEN BRADLEY	1075583
15		1492-JG4	TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4	2	ALLEN BRADLEY	1075665
16		SPD24301	POWER SUPPLY,24VAC	1	CARLO GAVAZZI	1080749
17		1492-N37	END,PLATE,AB FUSE	1	ALLEN BRADLEY	341367
18		1492-H6	FUSE HOLDER,DIN RAIL,1/4 X 1-1/4" FUSES	1	ALLEN BRADLEY	341366
19		MDL-1-R	FUSE,2.0,SLO-BLO,250V,3AG,313	1	BUSSMANN	939132
20			WIRE,VINYL,14AWG,GREEN W/YELLOW	3FT		931191
21			TERMINAL,RINGTONG,INS,16-14,10	1		933054
22			NUT,HEX,MACH,#10-32,BRASS	2		984129
23			WASHER,LK,E,SPT,#10,STL,NI	1		983120
24			WASHER,FLT,E,.203X.406X.040,BR	1		983021
25			WIRE,VINYL,14AWG,RED	.75FT		931296
26			WIRE,VINYL,14AWG,WHITE	.75FT		931268
27		C3LG6	DUCT,WIRE COVER 2W,6FT LG	.14FT	PANDUIT	151139
28			WASHER,LK,E,INT,#10,STL,ZN	4		983124
29		PACKAGING	LABEL,BLANK,3.00X5.00	1		603348
30			STRAP,CABLE,.875DIA	4		939110
31		PACKAGING	BOX,CARDBOARD,20.0L X 13.5W X 8.0D	1		603124



SCHEMATIC







NOTES:

1. UNPAINTED, COLOR TO BE FACTORY GREY PRIMER.
2. ENCLOSURE TO BE PACKAGED IN CARTON WITH ADEQUATE PROTECTION AND LABELED WITH NORDSON PART NUMBER AND CURRENT REVISION. AFFIX NORDSON TRADEMARK LABELS POSITIONED TO COVER ANY EXISTING VENDOR MARKINGS ON CARTON.
3. IMPRINT LABEL WITH THE FOLLOWING INFORMATION AND AFFIX TO THE OUTSIDE OF THE FRONT DOOR (TEXT TO BE .25 HIGH MIN.).

iCONTROL SYSTEM
NETWORK INTERFACE BOX
120v/1ph/60hz/30w
PN 1103901

ITEM NO.	PART NUMBER	ICT	DESCRIPTION	QUANTITY

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED
X.XX +/- .030 X.XXX +/- .010
MACHINED SURFACES 125 AA
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.
THREAD LENGTH DIMS. ARE FULL THREAD
THIRD ANGLE PROJECTION

NEXT ASSEMBLY
FIRST PRODUCT USED ON iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

D SIZE

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DRAWN BY MHH DATE 16AUG10
CHECKED BY BL APPROVED BY BL
REL NO PE601981

INTERFACE BOX, ETHERNET, iCONTROL

CONTROL NUMBER 1103901 REV. A02

SCALE: FULL
PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
PAGE 1 / 1

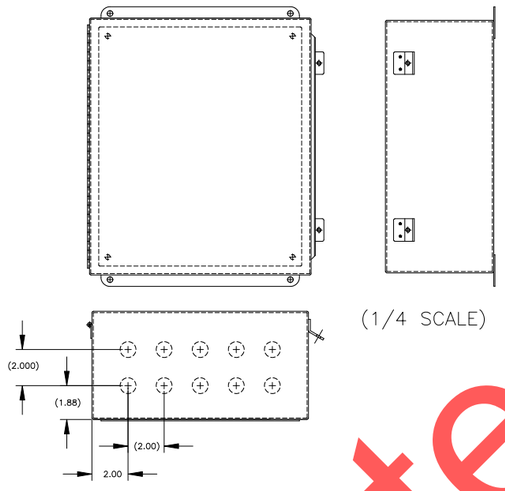
ITEM	DESIGNATION	MFG PART NO.	DESCRIPTION	QTY	MFG	NORDSON PART NO.
0			REF DWG ASSY,SCANNER J-BOX,GUN POSITIONER	1		1081427
1		832RB	ENCLOSURE, CONT HINGE,14x12x6, w/KNOCKOUTS	1	HOFFMAN	1081440
2			LABEL SET, SCANNER,GUN PSNR	1		1081458
3		8002-ISO	TAG,WARNING,ELECT SHOCK HAZARD,1.00x.88	1	SAFETY LABEL SOLUTIONS	1075692
4			LABEL,IDENTIFICATION,1.00 X 2.00	1		1005678
5		A14P12	PANEL,12.75 X 10.88,FOR 14X12 ENCLOSURE	1	HOFFMANN	1057271
6		0514500000	TBACCY,DIN,RAIL,SLOT,35x2M-LG	.50M	WEIDMULLER,INC	239214
7			SCR,HEX,SELF TAP,10-32X.500 Z	6		981137
8			WASHER,LK,E,INT,#10, STL,,ZN	4		983124
9			WIRE,VINYL,14AWG,GREEN W/YELLOW	4.5		931191
10		F1X3LG6	WIREDUCT, 1 X 3,PVC,GRAY,SLOTTED	1FT	PANDUIT	1090158
11		C1LG6	COVER 1	1	PANDUIT	1046394
12			PREFIX RESERVED	1		000000
13		60317	CONTROLLER,ANALOG,MINI-ARRAY	2	BANNER ENGINEERING	321158
14		1492-EAJ35	ANCHOR,END	3	ALLEN BRADLEY	306318
15		1492-J4	TERMINAL BLK,GRAY,IEC,22-10 AWG,JG4	7	ALLEN BRADLEY	1075583
16			MODULE GROUP,I/O,WAGO	1	WAGO	1081423
17		1492-JG4	TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4	2	ALLEN BRADLEY	1075665
18		1492-EBJ3	BARRIER,TBACCY,END,DIN,GRAY,J-SERIES	1	ALLEN BRADLEY	1075584
19		1492-CJLJ6-10	JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN	1	ALLEN BRADLEY	1078531
20			TERMINAL,RINGTONG,INS,16-14,10	1		933054
21			NUT,HEX,MACH,#10-32,BRASS	2		984129
22			WASHER,FLT,E,SPT,#10,STL,,NI	1		983120
23			WASHER,FLT,E,.20$ X.406 X.040,BR	1		983021
24			CONNECTOR,STRAIN RELIEF,1/2 NPT	4		972808
25			SEAL,CONDUIT FITTING,1/2,BLUE	4		939122
26			NUT,LOCK,1/2 CONDUIT	4		984526
27		QDC-515C	**CABLE,SCANNER,15 FT**	A/R	BANNER ENG CORP	321155
28		QDC-525C	CABLE,SCANNER,25 FT	A/R	BANNER ENG CORP	321156
29		QDC-550C	CABLE,SCANNER,50 FT	A/R	BANNER ENG CORP	321157
30			LABEL SET,PANEL WIRING FOR 1055890	1		1083082
31			WIRE,105C,18GA,BLUE,600V	10		335174
32			STRAP,CABLE,.875 DIA	1		939110
33			MOUNT,CABLE STRAP	1		242837
34		UTPCH2	CABLE,RJ45 TO RJ45,2FT	1	PANDUIT	282960
35		MX5-F02	CONNECTOR,ETHERNET,RJ45-TO-IDC,CAT5	1	SIEMON	1058224
36		MX-SM1-02	BOX,SURFACE MOUNT,ETHERNET	1	SIEMON	1078555
37			BOX,CARDBOARD,20.0 L X 13.5 W X 8.0 D	1		603124
38			LABEL,BLANK	1		603348
39			PREFIX RESERVED	1		000000
40			(OPTIONAL 2nd BOOTH ETHERNET SWITCH BOM)			
41		8918-13	WIRE,105C,18GA,BLUE,600V	1.0FT	BELDEN	335174
42		2891929	SWITCH,ETHERNET,8 PORT,10/100	1	PHOENIX	1103899
43		UTPCH2	CABLE,RJ45 TO RJ45,2FT	1	PANDUIT	282960
44		MX5-F02	CONNECTOR,ETHERNET,RJ45-TO-IDC,CAT5	1	SIEMON	1058224
45		MX-SM1-02	BOX,SURFACE MOUNT,ETHERNET	1	SIEMON	1078555
46		8916-189	WIRE,VINYL,14AWG,GREEN W/YELLOW	6.5FT	BELDEN	931191
47		PLT1M	CABLETIE,3.9 IN,185F/85C,NYLON,NATURAL	1	PANDUIT	939110

△ -WHEN CONNECTOR OPTION IS USED, THIS ITEM IS CONNECTED TO ETHERNET CONNECTOR, ITEM 60.

☆ -THESE ITEMS SHIP LOOSE WITHIN THE PANEL.

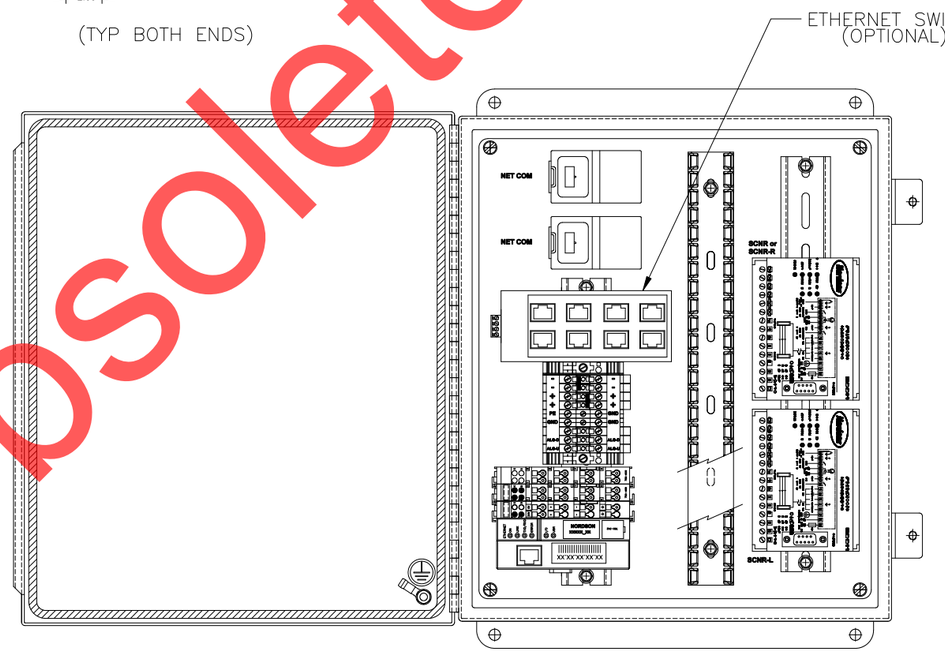
✱ITEM 16 I/O MODULE GROUP COMPONENT BREAKDOWN.

MFG PART NO.	DESCRIPTION	QTY	MFG
750-342	COUPLER,FIELDBUS,ETHERNET TCP/IP	1	WAGO
750-468	MODULE,ANALOG INPUT,0-10,4 CHANNEL	1	WAGO
750-600	END MODULE	1	WAGO



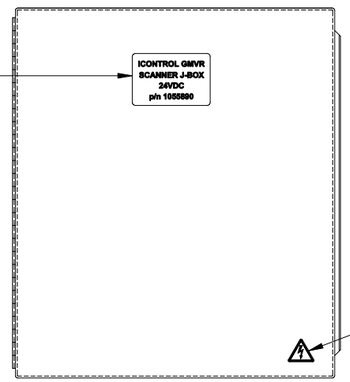
(1/4 SCALE)

(TYP BOTH ENDS)



iCONTROL GMVR SCANNER J-BOX 24VDC p/n 1055890

DOOR LABEL



TERMINAL BLOCK LAYOUT

-
-
+
+
PE / GND
GND
ALG-D
ALG-U

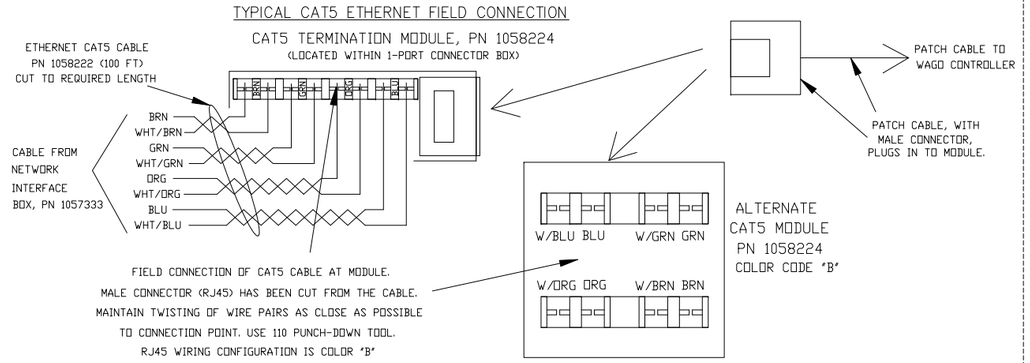
MODULE GROUP LAYOUT

750-600
750-468
750-342

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY TAH	DATE 21MAY04
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY JCAT	APPROVED BY JB
FIRST PRODUCT USED ON	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE37282	J-BOX,SCANNER, GUN POSITIONER, iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1055890 REV. A17
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: 1/2	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 1 / 3

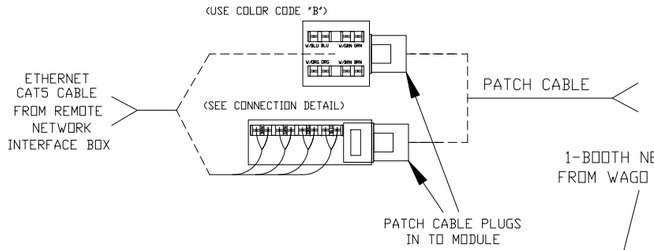
TYPICAL CAT5 ETHERNET FIELD CONNECTION

CAT5 TERMINATION MODULE, PN 1058224
(LOCATED WITHIN 1-PORT CONNECTOR BOX)

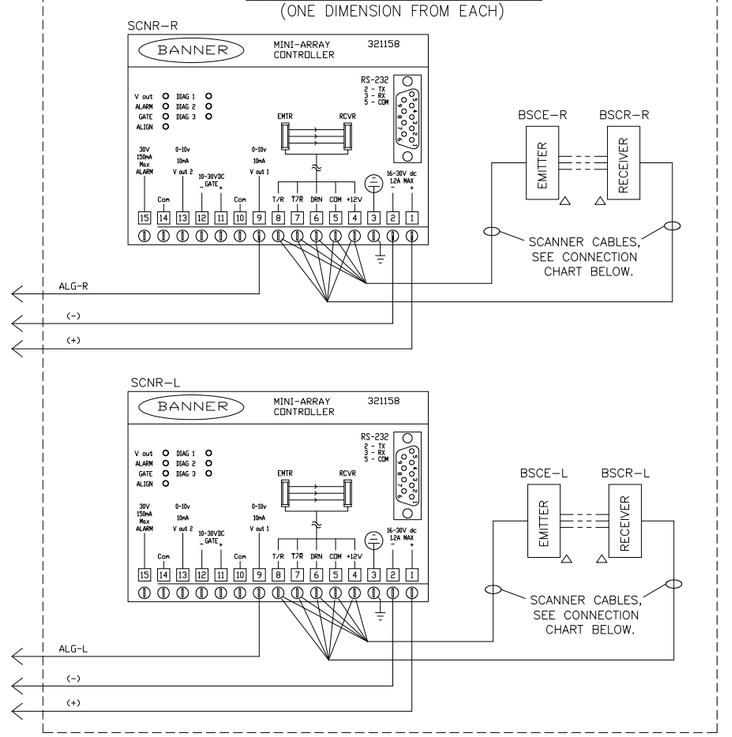


CAT5 "FIELD CONNECTION" TERMINATION MODULE

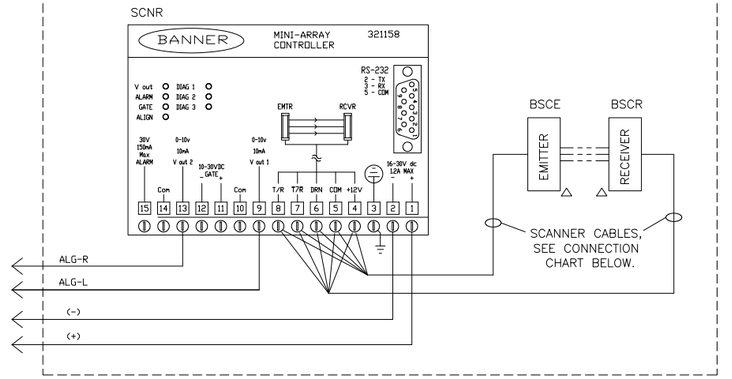
TWO POSSIBLE CONNECTOR CONFIGURATIONS



DUAL SCANNER WIRING CONFIGURATION
(ONE DIMENSION FROM EACH)

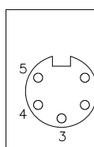


SINGLE SCANNER WIRING CONFIGURATION
(PROVIDES BOTH LEFT AND RIGHT DIMENSION)



** SEE SHEET 3 FOR CONNECTOR OPTION

LEGEND
△ - REMOTELY LOCATED DEVICE



SCANNER EMITTER/RECEIVER CABLE CONNECTIONS

NON-RATED CABLE PIN / COLOR pn 321155		RATED CABLE PIN / COLOR pn 343207		CONTROLLER TERMINAL / COLOR	
4	BROWN	4	ORANGE	4	BROWN
2	BLUE	2	RED	5	BLUE
3	SHIELD	3	GREEN	6	DRAIN
1	BLACK	1	WHITE	7	BLACK
5	WHITE	5	BLACK	8	WHITE

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED
X.XX +/- .030 X.XXX +/- .010
MACHINED SURFACES 125 AA
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.
THREAD LENGTH DIMS. ARE FULL THREAD
THIRD ANGLE PROJECTION

NEXT ASSEMBLY
FIRST PRODUCT USED ON
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

D SIZE

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

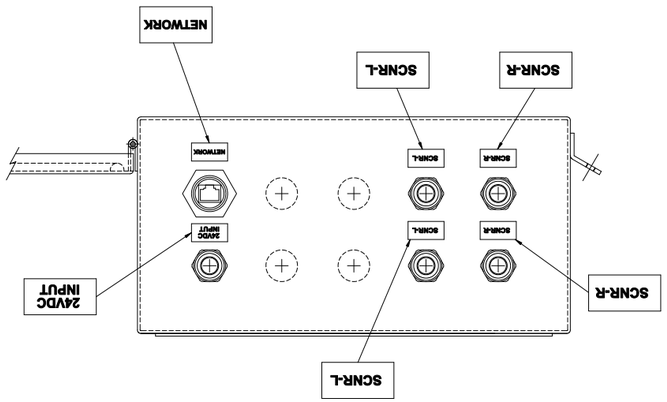
DRAWN BY TAH DATE 21MAY04
CHECKED BY JCAT APPROVED BY JB
REL NO PE37282

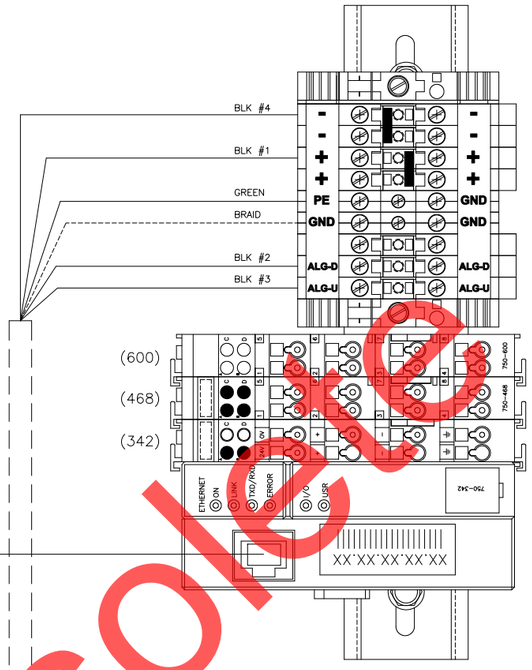
J-BOX,SCANNER, GUN POSITIONER, iCONTROL

CONTROL NUMBER 1055890 REV. A17

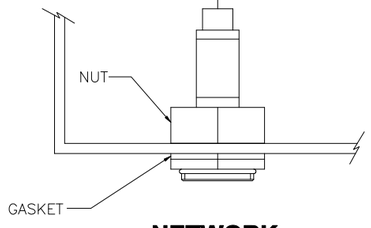
SCALE: NTS
PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
PAGE 2 / 2

CONNECTORS OPTION





RJ45 CABLE

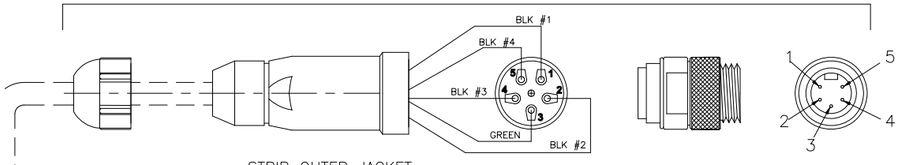


NETWORK
RJ45 BULKHEAD CONNECTOR

24VDC INPUT

OVERALL LENGTH 5 FEET

FIELD CONNECTION TO 1035897



STRIP OUTER JACKET AND BRAID SHEILD FROM CABLE, 1.50 IN.

WIRING SIDE

FRONT FACE SIDE

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY LSM	DATE 12APR07
NEXT ASSEMBLY	MACHINED SURFACES 125/ AA	CHECKED BY BL	APPROVED BY BL
FIRST PRODUCT USED ON	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO SC300714	J-BOX,SCANNER, GUN POSITIONER, iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1055890 REV. A17
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: FULL	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 3 / 3

LABEL,IDENTIFICATION,1.00 X 2.00

1055889

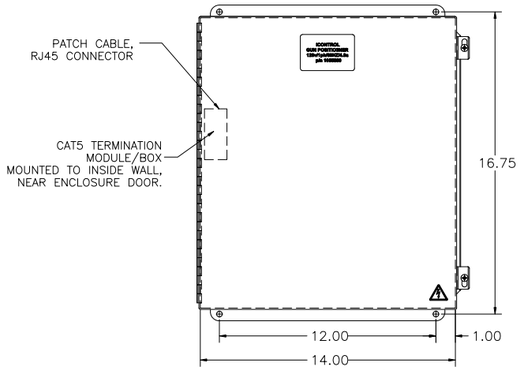
NOTICE THIS DRAWING IS NORDSON PROPERTY,CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

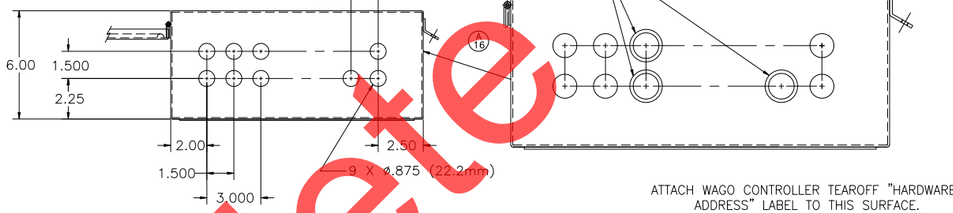
ITEM	DESIGNATION	MFG PART NO.	DESCRIPTION	QTY	MFG	NORDSON PART NO.
0			REF DWG,ASSY PANEL,GUN POSITIONER	0		1078407
1		A-1614CH	ENCLOSURE, CONT HINGE,16x14x6	1	HOFFMAN	1078420
2		CUSTOM	LABEL SET, GUN POSITIONER	1	------	1078684
3		8002-ISO	TAG,WARNING,ELECT SHOCK HAZARD,1.00x.88	1	SAFETY LABEL SOLUTIONS	1075692
4			LABEL,IDENTIFICATION,1.00 X 2.00	1		1005678
5		0514500000	TBACCY,DIN,RAIL,SLOT,35x2M-LG	.49M	WEIDMULLER,INC	239214
6			SCR,HEX,SELF TAP,10-32X .500,Z	6		981137
7		A-16P14	ENCLACCY,PANEL,14.75x12.88,14GA	1	HOFFMAN	1078422
8		F1x3LG6	WIREDUCT, 1 X 3,PVC,GRAY,SLOTTED	1FT	PANDUIT	1090158
9	GROUND	PK7GTA	GROUND TERMINAL	1	SQUARE D	1046405
10	SC210	KBMG-212D WITH 8833	CONTROLLER,DC DRIVE W/ SP BD,GUN PSNR	1	KB ELECTRONICS	1046921
11			SCR,HEX,SELF TAP,SLTD,8-32X.50,TYPE T,Z	4		1083981
12	CB207	1DU10	CIRCUIT BREAKER,1 POLE,10 AMP,10-20 xl n	1	ALTECH	1078518
13	CB210	1CU4	CIRCUIT BREAKER,1 POLE,4 AMP,5-10 xl n	1	ALTECH	1078516
14	PWS219	SPD24301	POWER SUPPLY,DINRAIL MT,30W,24-28VDC	1	CARLO GAVAZZ1	1080749
15			MODULE GROUP,I/O,WAGO	1	WAGO	1078669
16		C1LG6	COVER,1	1FT	PANDUIT	1046394
17	FU217	1492-H6	FUSE HOLDER,DIN RAIL,1/4 X 1-1/4" FUSES	1	ALLEN BRADLEY	341366
18	FU217	MDL-1-R	FUSE,2AMP,SLOBLO,250V,3AG,313	1	BUSSMANN	939016
19	FU217	1492-N37	END,PLATE,AB FUSE	1	ALLEN BRADLEY	341367
20		1492-J4	TERMINAL BLK,GRAY,IEC,22-10 AWG,JG4	30	ALLEN BRADLEY	1075583
21		1492-EAJ35	ANCHOR,END	2	ALLEN BRADLEY	306318
22	CR242	CR242	RELAY,TERM BLK,SPDT,110/125V AC/DC	1	ALLEN BRADLEY	1071600
23		1492-JG4	TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4	1	ALLEN BRADLEY	1075665
24		1492-J4-Y	TERMINAL BLK,YELLOW,IEC,22-10 AWG,JG4	2	ALLEN BRADLEY	1075694
25		1492-EBJ3	BARRIER,TBACCY,END,DIN,GRAY,J SERIES	2	ALLEN BRADLEY	1075584
26			WIRE,105C,18GA,BLUE,600V	31.5		335174
27			STRNDWIRE,14 AWG,YEL,600V,105C	3		1079956
28			WIRE,VINYL,14AWG,GREEN W/YELLOW	4.75		931191
29			WIRE,VINYL,14AWG,RED	7.5		931296
30			WIRE,VINYL,14AWG,WHITE	3		931268
31			WIRE,VINYL,18AWG,RED	9		931170
32			STRAP,CABLE,.875DIA	7		939110
33		UTPCH2	CABLE,RJ45 TO RJ45,2FT	1	PANDUIT	282960
34		MX5-F02	CONNECTOR,ETHERNET,RJ245-TO IDC,CAT5	1	SIEMON	1058224
35		MX-SM1-02	BOX,SURFACE MOUNT,ETHERNET	1	SIEMON	1078555
36			TERMINAL,RINGTONG,INS,16-14,10	1		933054
37			NUT,HEX,MACH,#10-32,BRASS	2		984129
38			WASHER,LK,E,SPT,#10,STL,NI	1		983120
39			WASHER,FLT,E,.203X.406X.040,BR	1		983021
40		1492-CJLJ6-10	JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN	1	ALLEN BRADLEY	1078531
41			QUIKCONN,INS,FEM,.250"X.032",14-16AWG	4		1049966
42			TERMINAL,FLG.SPADE,INS,16-14,6	1		933184
43			LABEL SET, PANEL WIRING FOR 1055889	1		1079873
44			WASHER,LK,E,INT,#10,STL,ZN	4		983124
45			LABEL,BLANK,3.00X5.00	1		603348
46			MOUNT,CABLE STRAP	1		242837
47			CONTROLLER,PROGRAMMED,GUN POS'R iCONTROL	1		1055963
48			CAP,FLUSH,7/8 DIA	3		900809

☆ CUT JUMPER AS REQUIRED FOR REQUIRED LENGTHS.

✱ITEM 15 I/O MODULE GROUP COMPONENT BREAKDOWN.

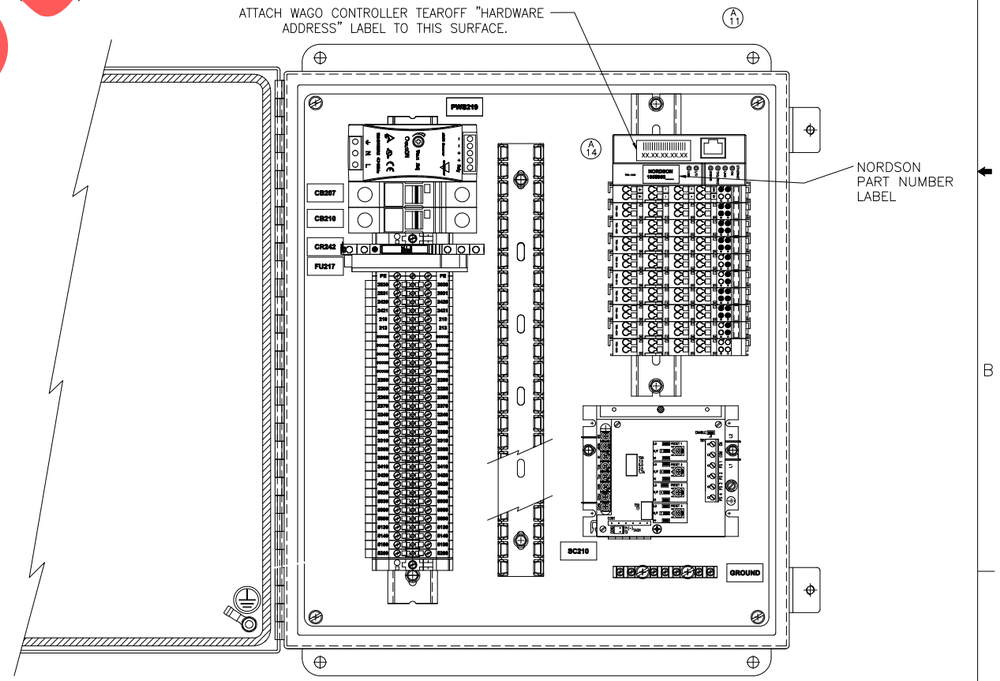
MFG PART NO.	DESCRIPTION	QTY	MFG
750-408	4-CHANNEL DIGITAL INPUT MODULE DC 24V	4	WAGO
750-514	2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V	2	WAGO
750-516	4-CHANNEL DIGITAL OUTPUT MODULE DC 24V	1	WAGO
750-634	INCREMENTAL ENCODER INTERFACE	1	WAGO
750-600	END MODULE	1	WAGO



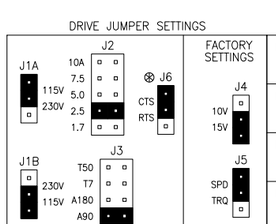


TERMINAL BLOCK LAYOUT

PE
2030
2031
2420
2421
210
213
DCCOM
DCCOM
DCCOM
DCCOM
DCCOM
2200
2200
2360
2370
3240
3250
3300
3310
3350
3360
3410
3420
4020
5020
5030
5060
5090
5130
5140
5190
5200



DRIVE JUMPER SETTINGS



JUMPER POSITIONS							
J1	J1A	J1B	J2	J3	J4	J5	J6
NO	115V	115V	2.5	A90	15V	SPD	CTS
							⊛

⊛ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

MULTI-SPEED BOARD JUMPER SETTINGS

FACTORY SETTINGS		
PRESET 1	LO – NO R/F – F HI – YES	FORWARD
PRESET 2	LO – NO R/F – R HI – YES	REVERSE
PRESET 3	LO – YES R/F – R HI – NO	BLOWOFF
PRESET 4	N/A	

ADJUST FOR DESIRED FORWARD SPEED
ADJUST FOR DESIRED REVERSE SPEED

FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

MULTI SPEED BOARD POT	%CLOCKWISE
PRE 1	50-100%
PRE 2	50-100%
PRE 3	50%
PRE 4	N/A

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

MAINBOARD POT	% C.W.
DB	100%
RESP	50%
IR	25%
FCL	75%
RCL	75%
MAX	100%
FACC	0%
RACC	0%

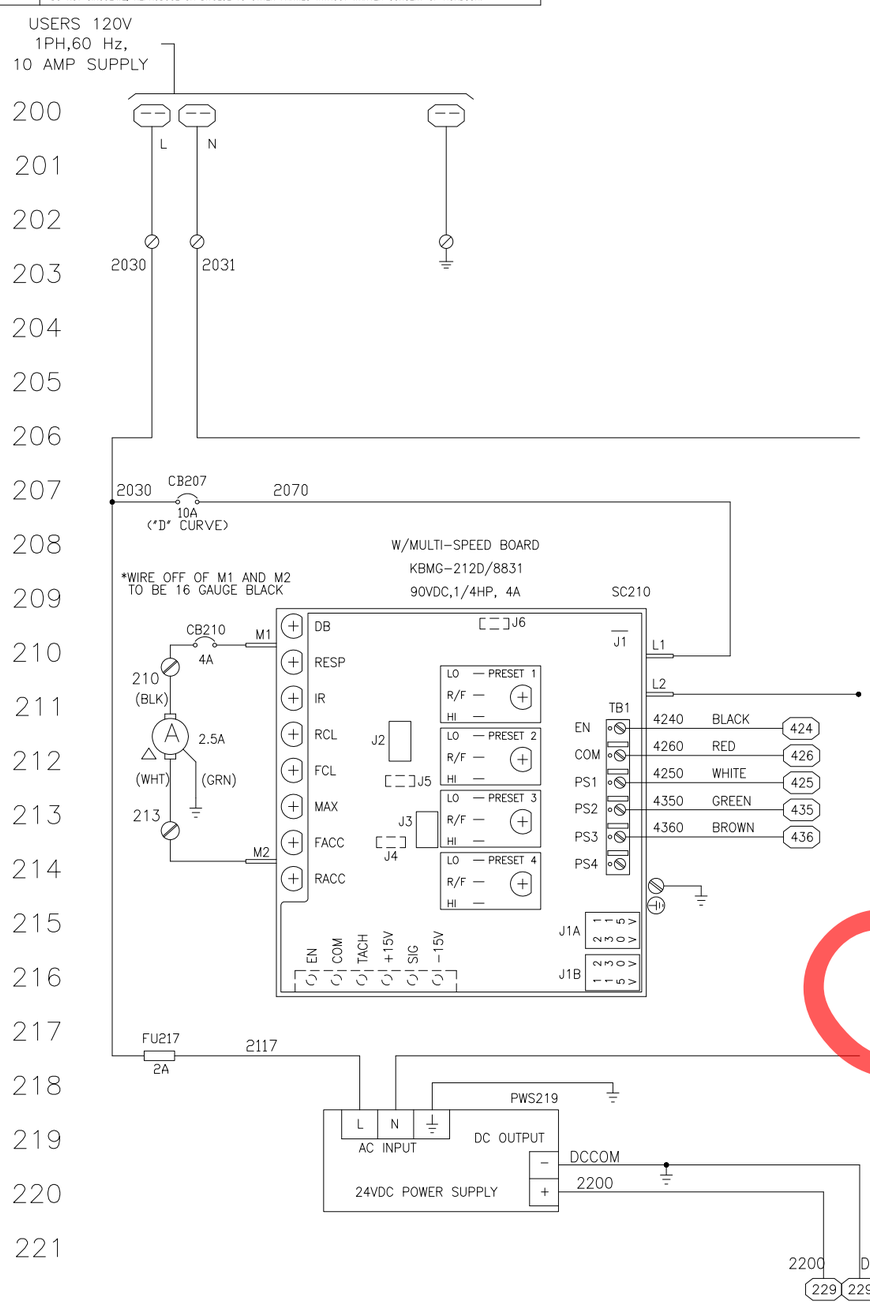
NOTE:
ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.

ITEM	ICT	PART NO.	DESCRIPTION	QTY.

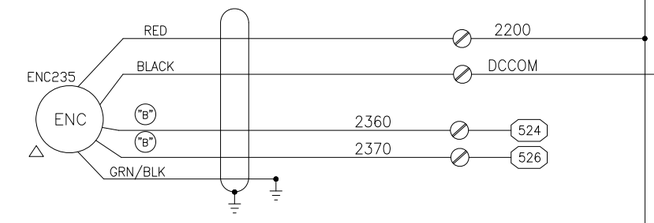
1056206	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED X.XX +/- .030 X.XXX +/- .010	D SIZE
NEXT ASSEMBLY	MACHINED SURFACES 125/ AA	DRAWN BY BL — DATE 26JUL04
FIRST PRODUCT USED ON IN-OUT POSITIONER	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	CHECKED BY -- — APPROVED BY BL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	REL NO PE37282
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	CONTROL NUMBER 1055889 REV. A16
		SCALE: FULL — PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING — PAGE 1 / 6

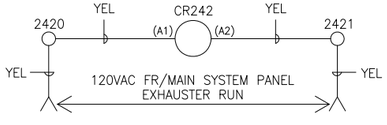
NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

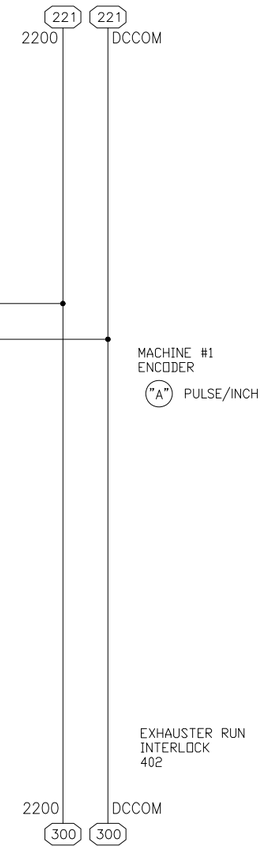
CONTROL PANEL, GUN POSITIONER, iCONTROL



ENCODER RESOLUTION AND WIRING		
BASE TYPE	PULSE/INCH ("A")	WIRING ("B")
RACK & PINION 1018682	262	2360 = GREEN 2370 = ORANGE
BELT-DRIVE 1056206	224	2360 = ORANGE 2370 = GREEN





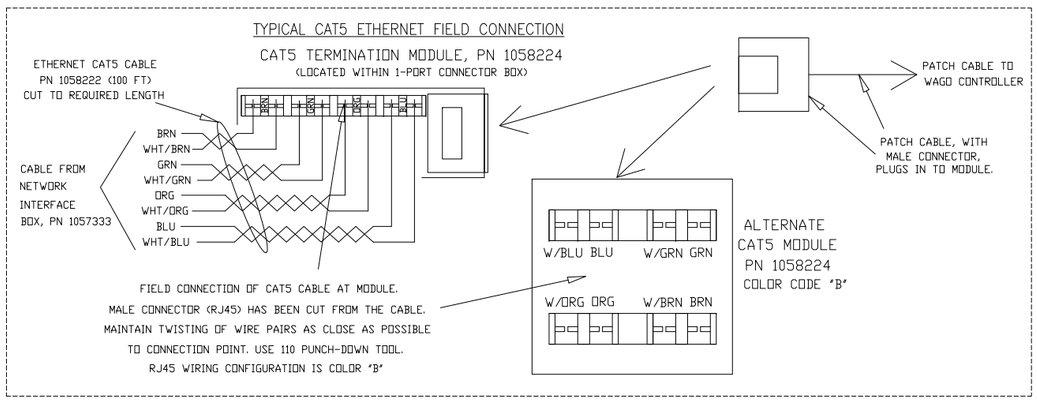


LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

1056206	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
NEXT ASSEMBLY	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 26JUL04
FIRST PRODUCT USED ON IN-OUT POSITIONER	MACHINED SURFACES 125 AA	CHECKED BY --	APPROVED BY BL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE37284	CONTROL PANEL, GUN POSITIONER, iCONTROL
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER 1055889	REV. A16
	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
			PAGE 2 / 6

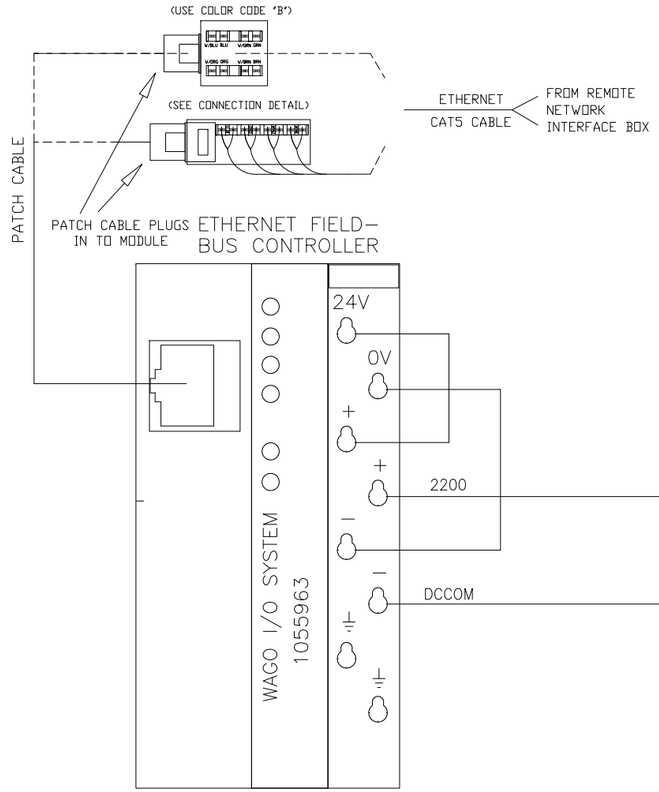
TYPICAL CAT5 ETHERNET FIELD CONNECTION

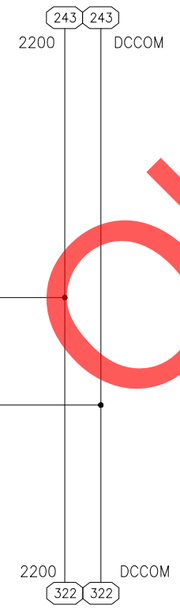
CAT5 TERMINATION MODULE, PN 1058224
(LOCATED WITHIN 1-PORT CONNECTOR BOX)

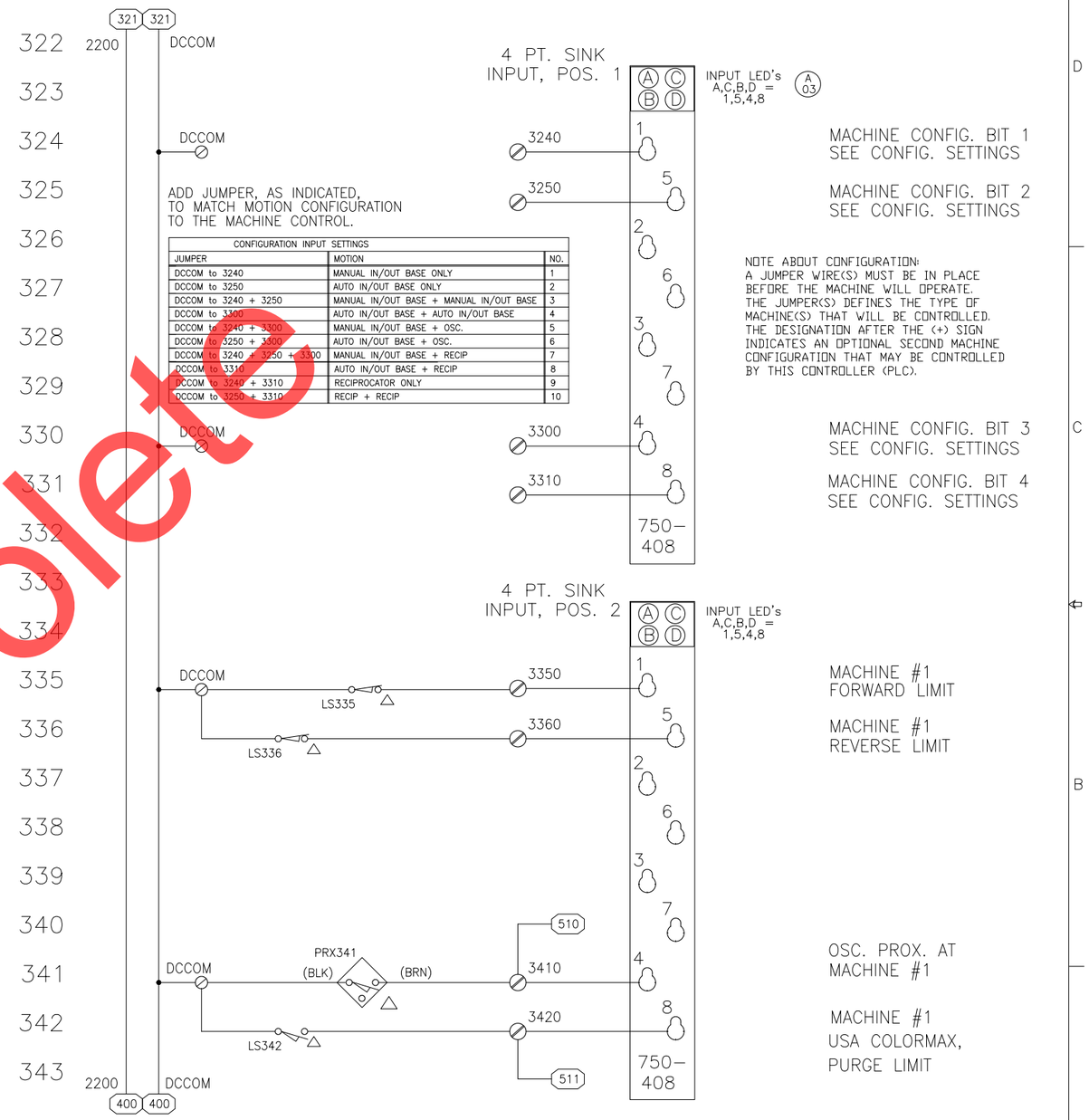


CAT5 TERMINATION MODULE

TWO POSSIBLE CONNECTOR CONFIGURATIONS







CONFIGURATION INPUT SETTINGS		
JUMPER	MOTION	NO.
DCCOM to 3240	MANUAL IN/OUT BASE ONLY	1
DCCOM to 3250	AUTO IN/OUT BASE ONLY	2
DCCOM to 3240 + 3250	MANUAL IN/OUT BASE + MANUAL IN/OUT BASE	3
DCCOM to 3300	AUTO IN/OUT BASE + AUTO IN/OUT BASE	4
DCCOM to 3240 + 3300	MANUAL IN/OUT BASE + OSC.	5
DCCOM to 3250 + 3300	AUTO IN/OUT BASE + OSC.	6
DCCOM to 3240 + 3250 + 3300	MANUAL IN/OUT BASE + RECIP	7
DCCOM to 3310	AUTO IN/OUT BASE + RECIP	8
DCCOM to 3240 + 3310	RECIPROCATOR ONLY	9
DCCOM to 3250 + 3310	RECIP + RECIP	10

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

1056206	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
NEXT ASSEMBLY	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 26JUL04
FIRST PRODUCT USED ON IN-OUT POSITIONER	MACHINED SURFACES 125 AA	CHECKED BY --	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE37282	CONTROL PANEL, GUN POSITIONER, iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1055889 REV. A16
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 3 / 6

IF COLORMAX SYSTEM WITH FEED CENTER,
SEE SYSTEM ELECTRICAL DRAWINGS FOR CONNECTION.
ALSO SEE SHEET 5

400 343 343 2200 DCCOM

4 PT. SINK INPUT, POS. 3

INPUT LED's A,C,B,D = 1,5,4,8 (A 03)

CR242 (11) (14) 4020

SIGNAL FROM BOOTH CONTROL BOOTH FAN RUN

(A 09)

MACHINE TEST INSTRUCTIONS

TO ACTIVATE TESTING, CONNECT APPROPRIATE INPUT(S) TO "DCCOM".
IF TESTING MACHINE 1, CONNECT "RUN TEST AT MACHINE #1 INPUT TO "DCCOM".
IF TESTING MACHINE 2, CONNECT "RUN TEST AT MACHINE #2" INPUT TO "DCCOM".
MANUAL TESTING:
SELECT MACHINE 1 OR 2 INPUT.
RUN FORWARD BY CONNECTING FWD INPUT.
MACHINE SHOULD STOP AT FORWARD LIMIT.
RUN REVERSE BY CONNECTING REV INPUT.
MACHINE SHOULD STOP AT REVERSE LIMIT.
TO RUN REVERSE SLOW SPEED, TOGGLE INPUT 2 BEFORE CONNECTING INPUT 2. MACHINE SHOULD STOP AT REVERSE LIMIT.
AUTO TESTING:
FIRST RUN MANUAL TEST TO THE FORWARD, AND THEN TO THE REVERSE LIMITS. (THIS ACTION SETS AUTO TESTING LIMITS BASED ON ENCODER SIGNAL PROCESSING).
SELECT MACHINE 1 OR/AND MACHINE 2 INPUT.
TO RUN AN AUTO TEST CONNECT BOTH FWD AND REV INPUTS TO "DCCOM".
THE MACHINE(S) WILL RUN FORWARD AND REVERSE BETWEEN TWO POINTS, EACH POINT BEING 1/4 OF TOTAL DISTANCE FROM EACH LIMIT. REVERSE SPEED WILL ALTERNATE BETWEEN NORMAL AND BLOWOFF SPEED.
IF RECIPROCATOR, SPEED WILL BE 3/4 MAX.

750–408

RUN TEST AT MACHINE #1

RUN TEST AT MACHINE #2

MACHINE TEST FWD INPUT

MACHINE TEST REV INPUT

DCCOM

DCCOM

DCCOM

421 2200 DCCOM 500 500

2 PT. RELAY OUTPUT, POS. 1

OUTPUT LED's A,C,B,D = 1,5,4,8 (A 03)

1 4240 211 — MACHINE #1 ENABLE
5 4250 212 — MACHINE #1 FORWARD
2 4260 212 — MACHINE #1 COMMON
6 4260
3
7
4
8

750–514

2 PT. RELAY OUTPUT, POS. 2

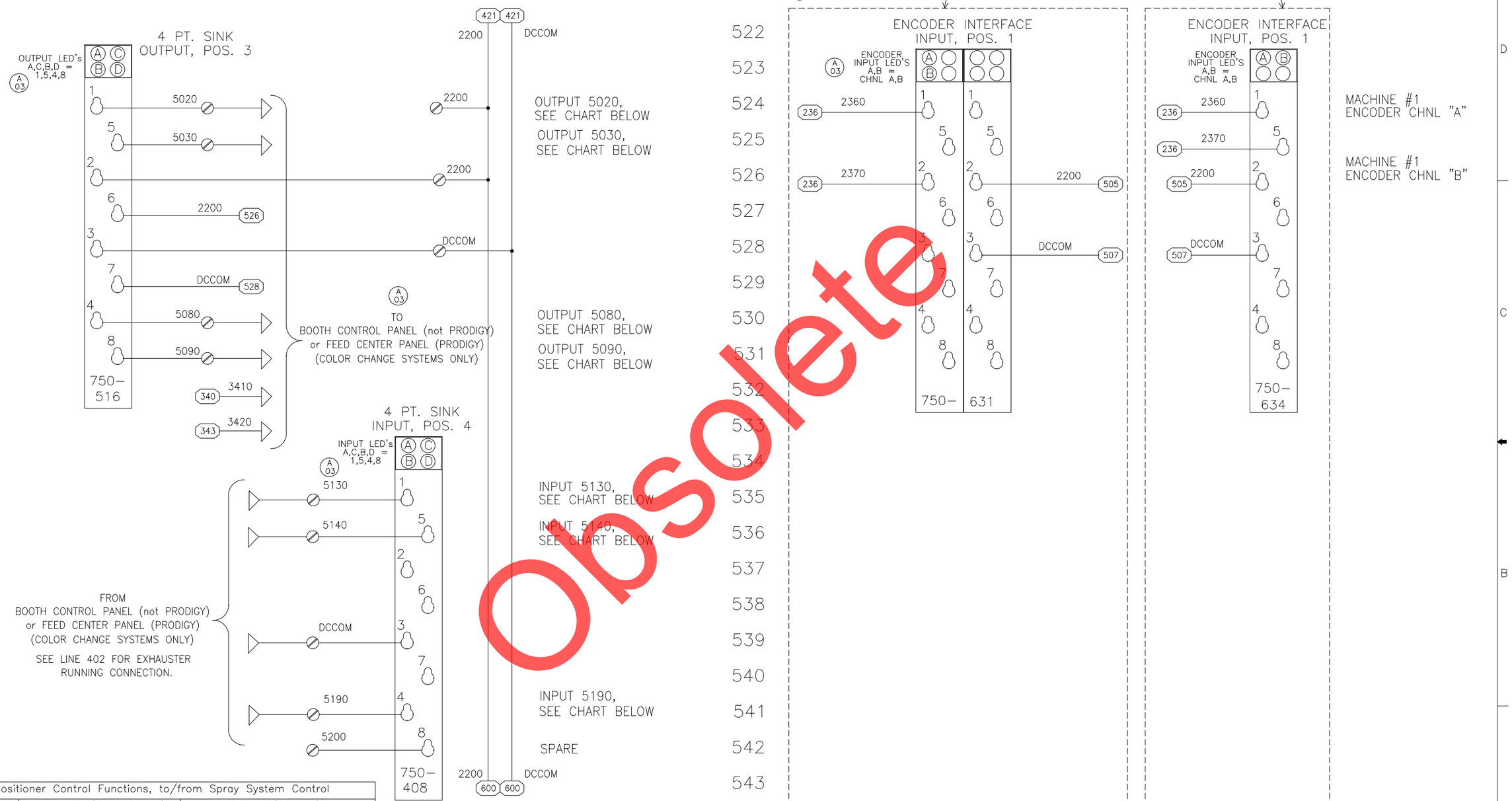
OUTPUT LED's A,C,B,D = 1,5,4,8 (A 03)

1 4350 213 — MACHINE #1 REVERSE
5 4360 213 — MACHINE #1 SLOW REVERSE
2 4260 — MACHINE #1 COMMON
6
3
7
4
8

750–514

LEGEND
△ – REMOTELY LOCATED DEVICE
⊘ – GUNMOVER PANEL TERMINAL

1056206	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
NEXT ASSEMBLY	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 26JUL04
FIRST PRODUCT USED ON IN–OUT POSITIONER	MACHINED SURFACES 125 AA	CHECKED BY --	APPROVED BY BL
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE37282	CONTROL PANEL, GUN POSITIONER, iCONTROL
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1055889 REV. A16
	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING — PAGE 4 / 6



Gun Positioner Control Functions, to/from Spray System Control			
Terminal	I/O	not Prodigy (GP1, GP2, etc.)	Prodigy (GP1 only)
5020	OUTPUT	Mechanical Brake Control	* Lockout (if Oscillator, Off = Lock)
5030	OUTPUT	External Blowoff Air Control	External Blowoff Air Control (all GP's)
5080	OUTPUT	Ready for Color Change	Color Change Start From iControl
5090	OUTPUT	External Blowoff Cycle Complete	Purge & Blowoff Cycle Complete
5130	INPUT	Disable (Off = Disable)	Spare
5140	INPUT	Run External Blowoff Cycle	Run Color Change Cycle
5190	INPUT	Internal Purge Cycle Complete	Spare
5200	INPUT	Spare	Spare

* "Mechanical Brake Control" function active if vertical gun positioner.
If Oscillator, then brake function is disabled, positioner is not vertical.

A 11

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

1056206	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
NEXT ASSEMBLY	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 26JUL04
FIRST PRODUCT USED ON	MACHINED SURFACES 125/ AA	CHECKED BY --	APPROVED BY BL
IN-OUT POSITIONER	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE37282	CONTROL PANEL, GUN POSITIONER, iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1055889 REV. A16
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 5 / 6

1055889

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LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUN POSITIONER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
1056206	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 26JUL04
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY --	APPROVED BY BL
FIRST PRODUCT USED ON: IN-OUT POSITIONER	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE37282	CONTROL PANEL, GUN POSITIONER, iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1055889 REV. A16
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 6 / 6

NOTICE	THIS DRAWING IS NORDSON PROPERTY,CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

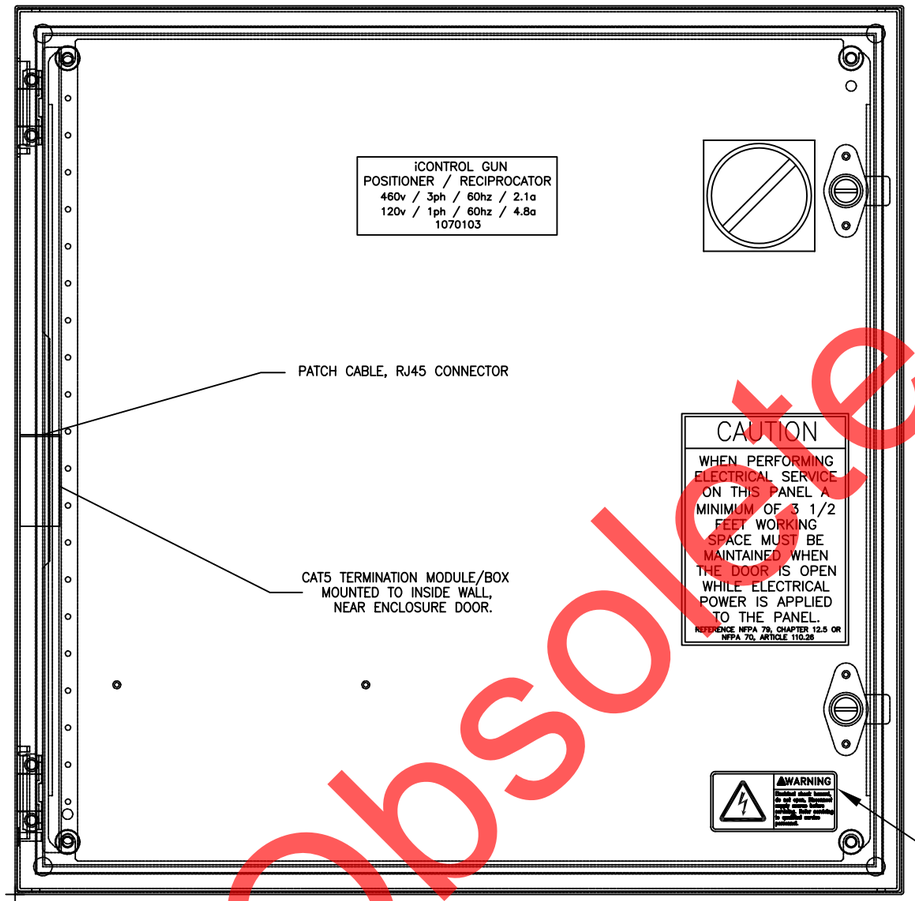
VENDOR'S BILL OF MATERIAL

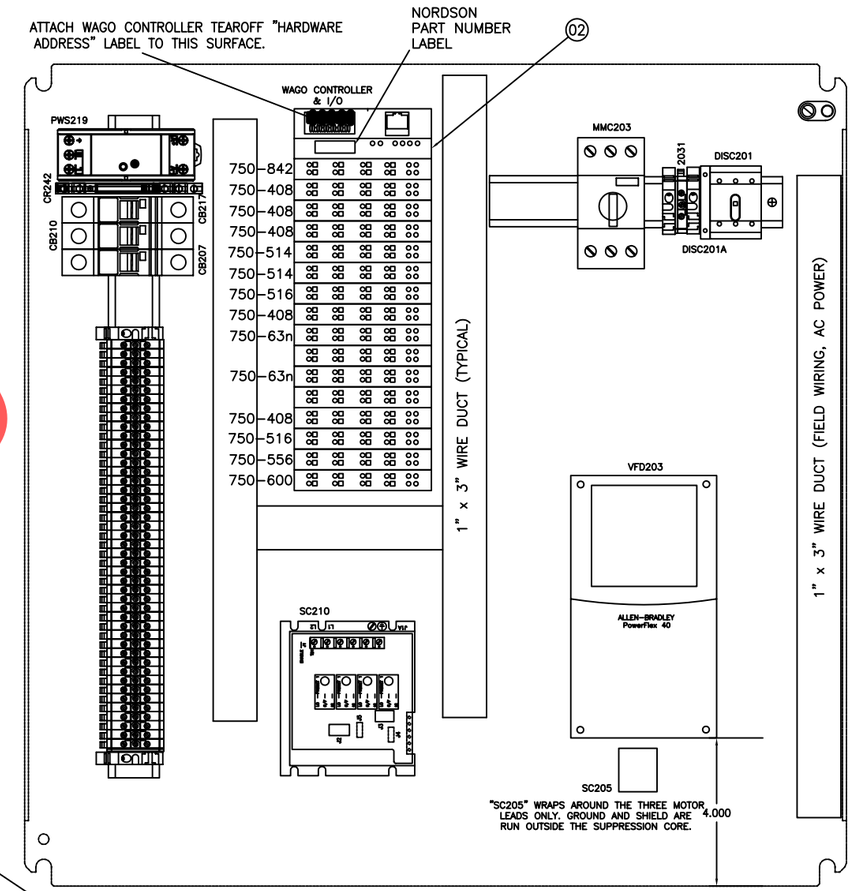
QTY	ITEM	PART NO.	MFG.	
1	ENCLOSURE	SEE INVERTER CHART	HOFFMAN	
1	SUB-PLATE	C-P2424	HOFFMAN	
A/R	DIN RAIL	D5PD2-20	CUTLER-HAMMER	
4	END ANCHOR	C383ES35	CUTLER-HAMMER	
2	END PLATE	C383AP4	CUTLER-HAMMER	
46	TERMINAL BLOCK	C383RK254	CUTLER-HAMMER	
1	JUMPER	C383JC402	CUTLER-HAMMER	
1	GROUND TERMINAL	PK7GTA	SQUARE D	
1	GROUND LUG	----	----	
1	CIRCUIT BREAKER	WMS1C4	CUTLER-HAMMER	
1	CIRCUIT BREAKER	WMS1D10	CUTLER-HAMMER	
1	CIRCUIT BREAKER	WMS1C2	CUTLER-HAMMER	
A/R	WIRE DUCT, 1" x 3"	--	--	
1	WORKING SPACE CAUTION LABEL, SAFETY YELLOW WITH BLACK ENGRAVING	CUSTOM	--	
1	RELAY, 120VAC, SPDT, DIN-RAIL MOUNT	700-HLT1U1	ALLEN-BRADLEY	
1	POWER SUPPLY, 30 WATT	PS5R-SC24	IDEC	
1	DISCONNECT SWITCH	OT16E3	ABB	
1	HANDLE	OHB2AJ1	ABB	
1	SHAFT	OXS5S180	ABB	
1	ADAPTER, PADLOCK, OPEN PANEL	DS-SA1	ABB	
1	AUX. CONTACT, DISCONNECT	----	ABB	
1	INVERTER, 3-PH, 1-HP	SEE INVERTER CHART	ALLEN-BRADLEY	
1	EMI SUPPRESSION CORE, SPLIT HALVES (SC205)	0043167251	FAIR-RITE	# (03)
1	MANUAL MOTOR CONTROLLER	SEE INVERTER CHART	CUTLER-HAMMER	
1	DC DRIVE	KBMG-212D	KB ELECTRONICS	
1	MULTI-SPEED BOARD	8833	KB ELECTRONICS	
1	PROGRAMMED ETHERNET FIELDBUS CONTROLLER, WAGO pn750-842	SEE ITEM 02	NORDSON	
5	MODULE, INPUT, SINK, 4 PT.	750-408	WAGO	
2	MODULE, OUTPUT, SINK, 4 PT.	750-516	WAGO	
2	MODULE, OUTPUT, RELAY, 2 PT.	750-514	WAGO	
2	MODULE, INTERFACE, ENCODER	750-631	WAGO	* (04)
	MODULE, INTERFACE, ENCODER	750-634	WAGO	* (04)
1	MODULE, OUTPUT, ALG., +/- 10VDC	750-556	WAGO	
1	MODULE, END	750-600	WAGO	
1	MAX MODULE, CAT5, ETHERNET	MX5-F02	SIEMON	(05)
1	CONNECTOR BOX, 1-PORT, ETHERNET	MX-SM1-02	SIEMON	(06)
1	PATCH CABLE, CAT5e, T568B, ETHERNET, 24"	----	----	

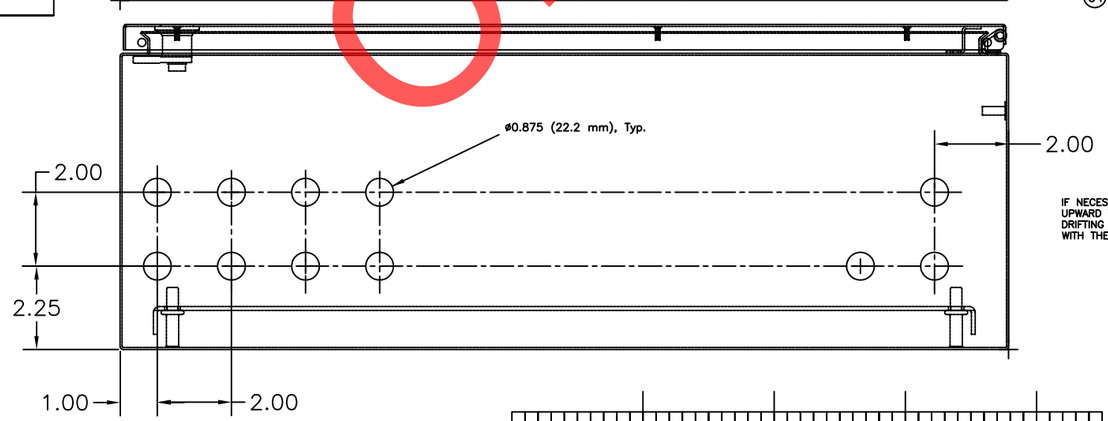
* - 750-631 AND 750-634 ARE INTERCHANGABLE MODULES, 750-634 REPLACING 750-631.

- MARK THIS ITEM AS "SC205". FOR SHIPMENT, SECURE VIA CLEAR PACKING TAPE TO THE FRONT COVER OF THE INVERTER, ITEM VFD203.

INVERTER CHART					
3-PH VOLTS	208	230	380	480	575
CONTROLLER	A-302JN	A-302HN	A-302GN	A-302GN	A-302GN
INVERTER	22B-B5P0N104		22B-D2P3N104		22B-E1P7N104
ENCLOSURE	C-SD24248				







FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

ADJUST FOR DESIRED FORWARD SPEED

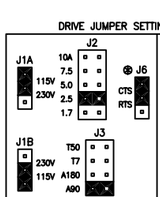
ADJUST FOR DESIRED REVERSE SPEED

MULTI SPEED BOARD POT	%CLOCKWISE
PRE 1	50-100%
PRE 2	50-100%
PRE 3	50%
PRE 4	N/A

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

MAINBOARD POT	% C.W.
DB	100%
RESP	50%
IR	25%
FCL	75%
RCL	75%
MAX	100%
FACC	0%
RACC	0%

DRIVE JUMPER SETTINGS



JUMPER POSITIONS							
J1	J1A	J1B	J2	J3	J4	J5	J6
NO	115V	115V	2.5	A90	15V	SPD	CTS

MULTI-SPEED BOARD JUMPER SETTINGS

PRESET 1	LO - NO R/F - F HI - YES	FORWARD
PRESET 2	LO - NO R/F - R HI - YES	REVERSE
PRESET 3	LO - YES R/F - R HI - NO	BLOWOFF
PRESET 4	N/A	

⊛ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

WORK SPACE CAUTION LABEL
SAFETY YELLOW
WITH BLACK ENGRAVING

APPROX. 4.5"

0.5 INCH TEXT

0.25 INCH TEXT

.0125 INCH TEXT

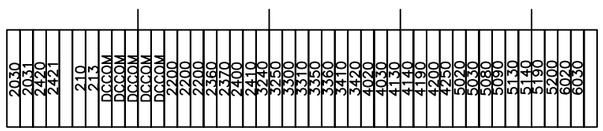
CAUTION

WHEN PERFORMING ELECTRICAL SERVICE ON THIS PANEL A MINIMUM OF 3 1/2 FEET WORKING SPACE MUST BE MAINTAINED WHEN THE DOOR IS OPEN WHILE ELECTRICAL POWER IS APPLIED TO THE PANEL.

REFERENCE NFPA 79, CHAPTER 12.5 OR NFPA 70, ARTICLE 110.26

APPROX. 6.25"

TERMINAL BLOCK LAYOUT



02	L	1055963	CONTROLLER,PROGRAMMED,GUN POS'R iCONTROL	1
01	L	226709	LABEL, WARNING, CONTROL PANEL	1
ITEM	ICT	PART NO.	DESCRIPTION	QTY.

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED

X.XX +/- .030 X.XXX +/- .010

MACHINED SURFACES 125 µM

BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.

INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.

THREAD LENGTH DIMS. ARE FULL THREAD

PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

THIRD ANGLE PROJECTION

D SIZE

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DRAWN BY BL DATE 3JUN05

CHECKED BY BL APPROVED BY BL

REL NO PE300399

PANEL,iCONTROL POSITIONER, RECIPROCATOR

CONTROL NUMBER 1070103 REV. A11

SCALE: NTS

PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING

PAGE 1 / 6

USERS 120V 1PH,60 Hz, 10 AMP SUPPLY

USERS 3PH, 60Hz SUPPLY

L N L1 L2 L3

DISC201A DISC201

1L1 1L2 1L3

2030 2031

MMC203

1L1 1L11

1L2 1L21

1L3 1L31

VFD203

12 13 14 R2 R1

L1 L2 L3

Allen–Bradley PowerFlex 40

DIP–SWITCH SETTINGS

0–10V ☒

0–20mA ☐

SNK ☒

SRC ☐

01 02 05 04

U V W

GND 1T1 1T2 1T3

SC205

MOTOR

"SC205" WRAPS AROUND THE THREE MOTOR LEADS ONLY. GROUND AND SHIELD ARE RUN OUTSIDE THE SUPPRESSION CORE.

(SHLD) GND 631

(BLK) 6250 625

(WHT) 6290 629

(GRN) DCCOM 607

(RED) 6080 608

(GRN) DCCOM 617

(BLK) 6140 614

(WHT) 6130 613

RECIPROCATOR MOTOR
3 PH, 1 HP, INVERTER DUTY

PARAMETER SETTINGS		
P	VALUE	DESCRIPTION
P031	A/R	MOTOR NAMEPLATE "VOLTS"
P033	A/R	MOTOR NAMEPLATE "FULL LOAD AMPS"
P035	70	MAXIMUM FREQUENCY
P036	2	START SOURCE – "2–WIRE"
P037	4	STOP MODE – "RAMP"
P038	2	SPEED REFERENCE – "0–10V INPUT"
P039	0.2	ACCELERATION TIME
P040	0.2	DECELLERATION TIME
A123	1	10V BIPOLAR ENBL – "BI–POLAR IN"

TO CHANGE PARAMETERS:
REFER TO ALLEN–BRADLEY POWERFLEX 40 USERS MANUAL, VIEWING AND EDITING PARAMETERS.

2030 CB207 10A ("D" CURVE) 2070

SC210

CB210 4A M1

210 (BLK) 2.5A (WHT) (GRN) 213 M2

* WIRE OFF OF M1 & M2 TO BE 16 GAUGE BLACK

DB RESP IR RCL FCL MAX FACC RACC

J6 J1 J2 J5 J3 J4

LO — PRESET 1 R/F — HI —

LO — PRESET 2 R/F — HI —

LO — PRESET 3 R/F — HI —

LO — PRESET 4 R/F — HI —

EN COM TACH +15V SIG –15V

J1A J1B

L1 L2

TB1

EN 4240 BLACK 424

COM 4260 RED 426

PS1 4250 WHITE 425

PS2 4350 GREEN 435

PS3 4360 BROWN 436

PS4

W/MULTI–SPEED BOARD
KBMG–212D/8831
90VDC,1/4HP, 4A

ENABLE
COMMON
FORWARD/EXTEND
REVERSE/RETRACT
BLOWOFF/SLOW RETRACT

CB217 2A

PWS219

L N

AC INPUT

DC OUTPUT

24VDC POWER SUPPLY

DCCOM 2200

24VDC POWER SUPPLY
30 W, 1.3 A

2200 DCCOM
229 229

POSITIONER ENCODER RESOLUTION AND WIRING		
BASE TYPE	PULSE/INCH ("A")	WIRING ("B")
RACK & PINION 1018682	262	2360 = GREEN 2370 = ORANGE
BELT–DRIVE 1056206	224	2360 = ORANGE 2370 = GREEN

RED BLACK ("B") ("B") GRN/BLK

ENC235 ENC

2200 DCCOM 2360 2370 524 526

RED BLACK ("C") ("C") GRN/BLK

ENC239 ENC

2200 DCCOM 2400 2410 535 537

2420 YEL (A1) CR242 (A2) YEL 2421

YEL YEL

120VAC FR/MAIN SYSTEM PANEL EXHAUSTER RUN

2200 DCCOM
300 300

MACHINE #1 ENCODER
("A") PULSE/INCH

MACHINE #2 ENCODER
64 PULSE/INCH

EXHAUSTER RUN INTERLOCK 402

RECIPROCATOR ENCODER WIRING	
"0" POSITION at	WIRING ("C")
FORWARD LIMIT (DEFAULT/TESTING)	2400 = ORANGE 2410 = GREEN
REVERSE LIMIT (OPTIONAL)	2400 = GREEN 2410 = ORANGE

LEGEND
△ – REMOTELY LOCATED DEVICE
⊘ – GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED
X.XX +/– .030 X.XXX +/– .010
MACHINED SURFACES 125 AA
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.
THREAD LENGTH DIMS. ARE FULL THREAD
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES
THIRD ANGLE PROJECTION

D SIZE

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DRAWN BY BL DATE 3JUN05
CHECKED BY BL APPROVED BY BL
REL NO PE300399

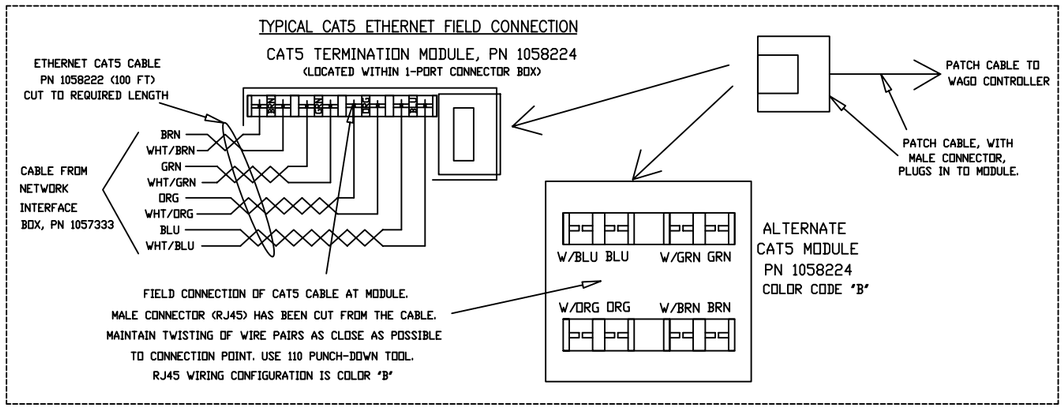
PANEL,iCONTROL POSITIONER, RECIPROCATOR

CONTROL NUMBER 1070103 REV. A11

SCALE: NTS
PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
PAGE 2 / 6

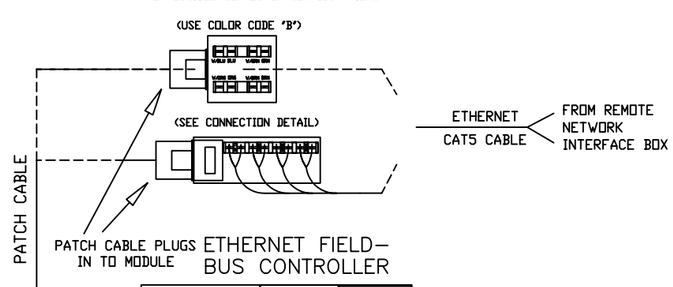
TYPICAL CAT5 ETHERNET FIELD CONNECTION

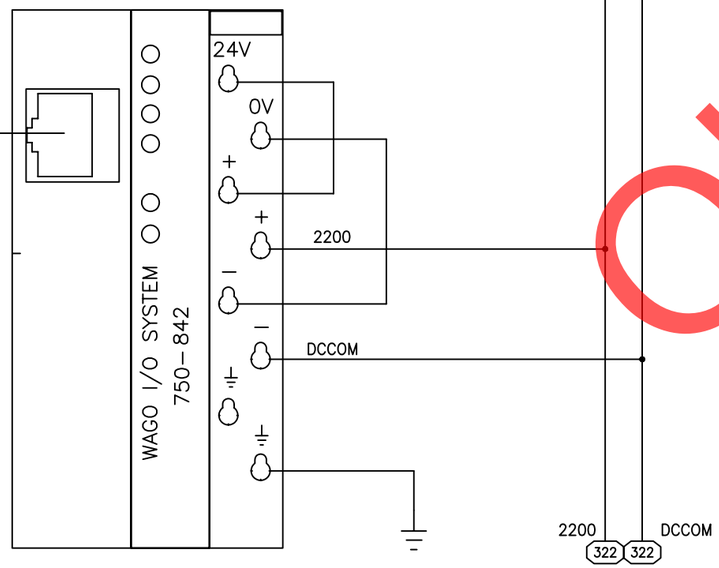
CAT5 TERMINATION MODULE, PN 1058224
(LOCATED WITHIN 1-PORT CONNECTOR BOX)

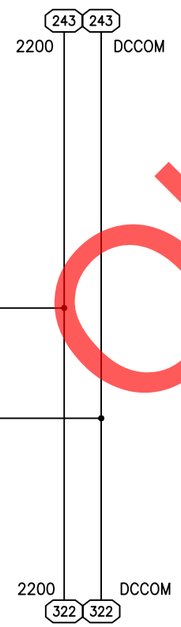


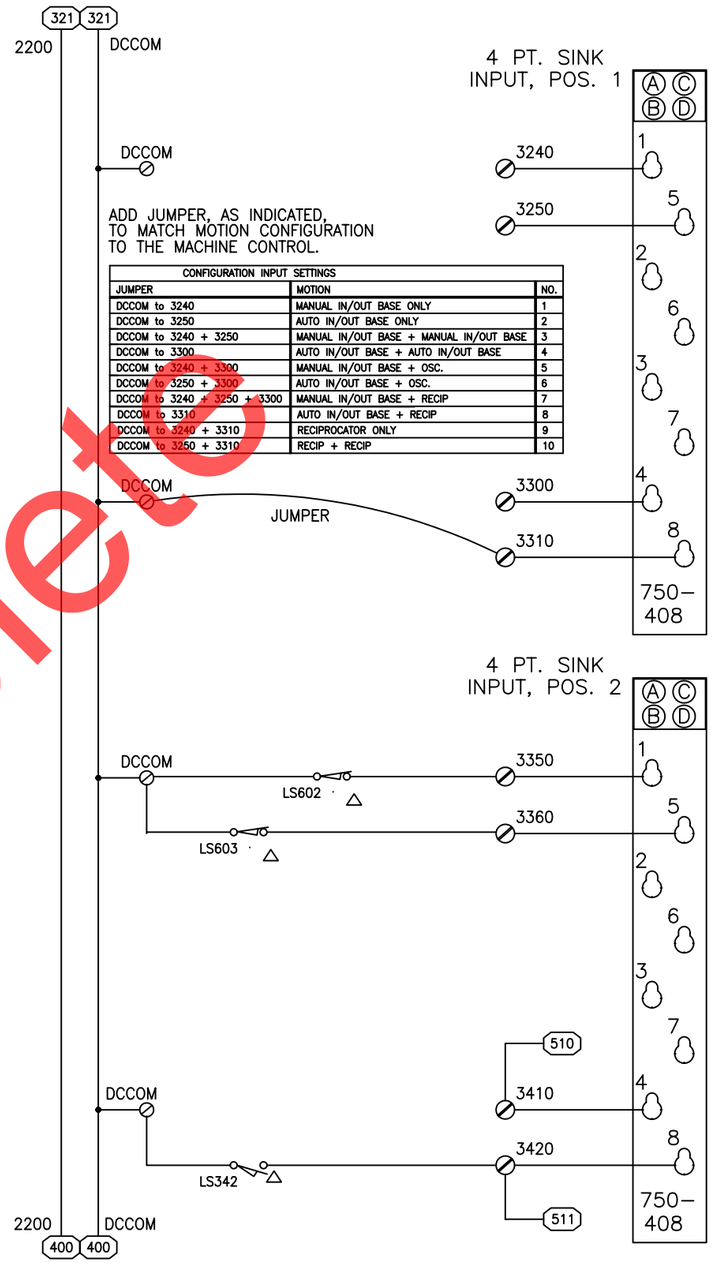
CAT5 TERMINATION MODULE

TWO POSSIBLE CONNECTOR CONFIGURATIONS









CONFIGURATION INPUT SETTINGS		
JUMPER	MOTION	NO.
DCCOM to 3240	MANUAL IN/OUT BASE ONLY	1
DCCOM to 3250	AUTO IN/OUT BASE ONLY	2
DCCOM to 3240 + 3250	MANUAL IN/OUT BASE + MANUAL IN/OUT BASE	3
DCCOM to 3300	AUTO IN/OUT BASE + AUTO IN/OUT BASE	4
DCCOM to 3240 + 3300	MANUAL IN/OUT BASE + OSC.	5
DCCOM to 3250 + 3300	AUTO IN/OUT BASE + OSC.	6
DCCOM to 3240 + 3250 + 3300	MANUAL IN/OUT BASE + RECIP	7
DCCOM to 3310	AUTO IN/OUT BASE + RECIP	8
DCCOM to 3240 + 3310	RECIPROCATOR ONLY	9
DCCOM to 3250 + 3310	RECIP + RECIP	10

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE BEFORE THE MACHINE WILL OPERATE. THE JUMPER(S) DEFINES THE TYPE OF MACHINE(S) THAT WILL BE CONTROLLED. THE DESIGNATION AFTER THE (+) SIGN INDICATES AN OPTIONAL SECOND MACHINE CONFIGURATION THAT MAY BE CONTROLLED BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS

MACHINE #1
FORWARD LIMIT

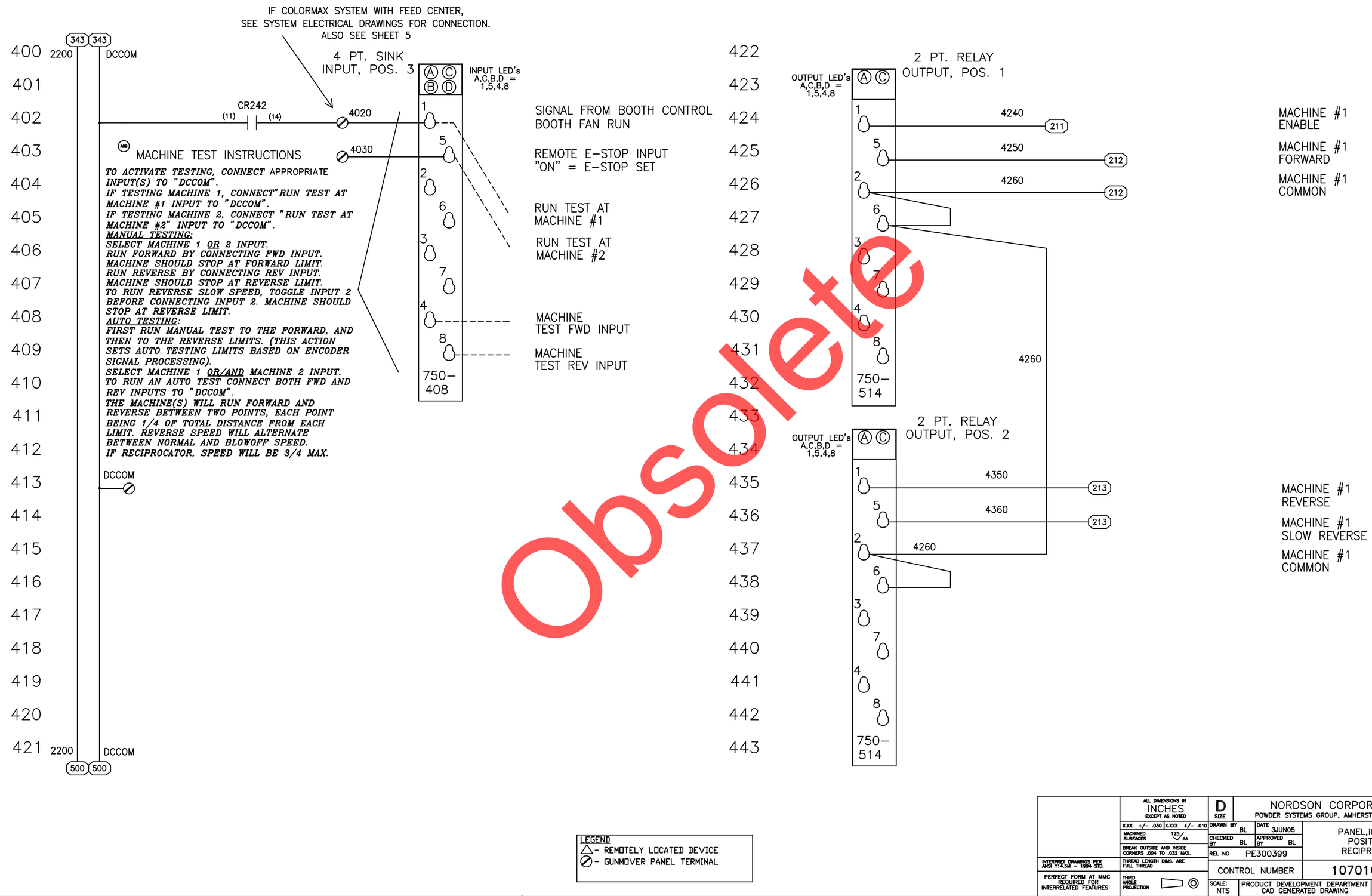
MACHINE #1
REVERSE LIMIT

MACHINE #1

MACHINE #1
USA COLORMAX,
PURGE LIMIT

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 3JUN05
	MACHINED SURFACES 125 µM	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE300399	PANEL,iCONTROL POSITIONER, RECIPROCATOR
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1070103 REV. A11
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING — PAGE 3 / 6



LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001	
X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 3JUN05	PANEL,iCONTROL POSITIONER, RECIPROCATOR
MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL	
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE300399		
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1070103 REV. A11
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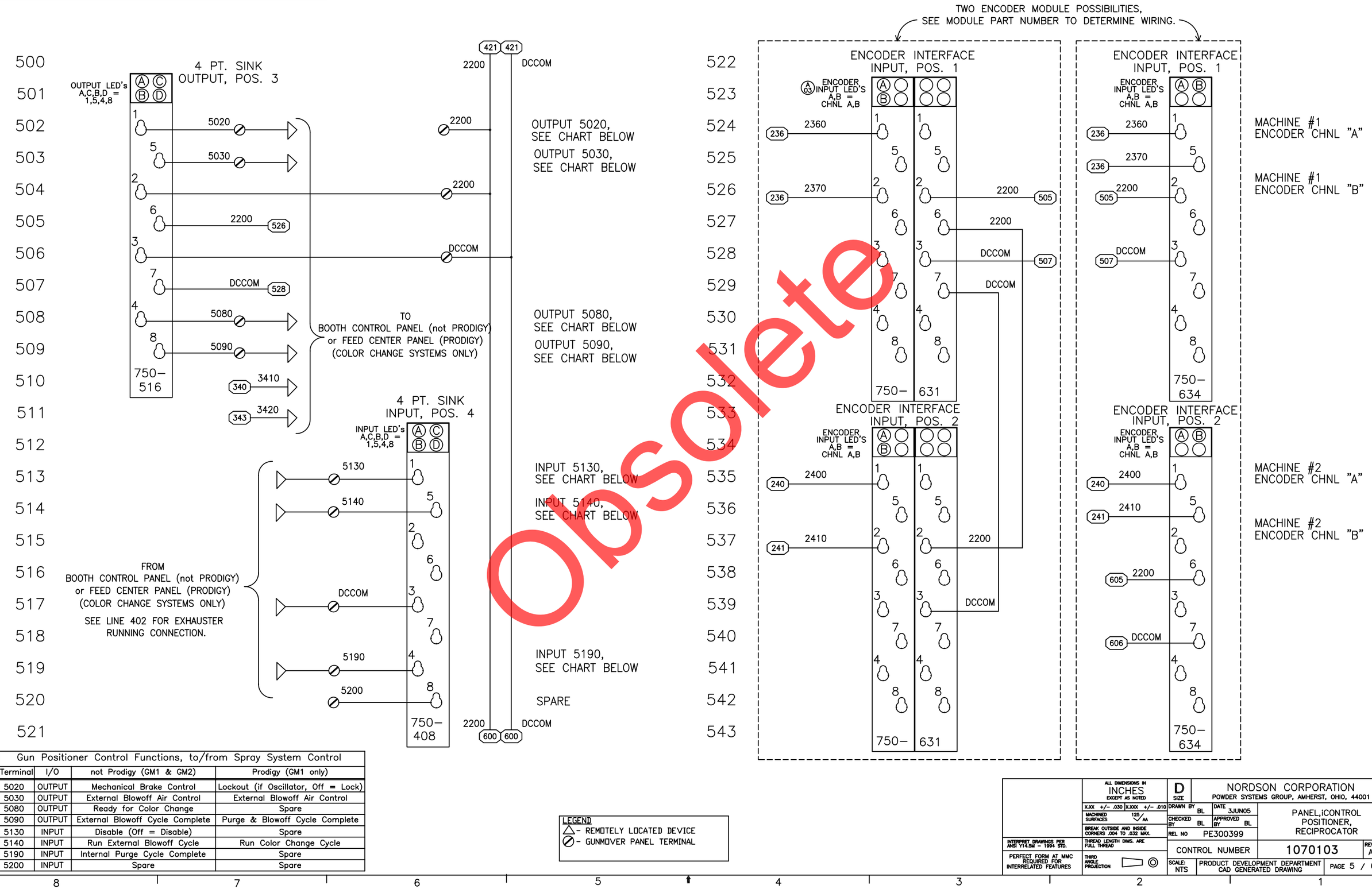

Gun Positioner Control Functions, to/from Spray System Control			
Terminal	I/O	not Prodigy (GM1 & GM2)	Prodigy (GM1 only)
5020	OUTPUT	Mechanical Brake Control	Lockout (if Oscillator, Off = Lock)
5030	OUTPUT	External Blowoff Air Control	External Blowoff Air Control
5080	OUTPUT	Ready for Color Change	Spare
5090	OUTPUT	External Blowoff Cycle Complete	Purge & Blowoff Cycle Complete
5130	INPUT	Disable (Off = Disable)	Spare
5140	INPUT	Run External Blowoff Cycle	Run Color Change Cycle
5190	INPUT	Internal Purge Cycle Complete	Spare
5200	INPUT	Spare	Spare

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED
X.XX +/- .030 X.XXX +/- .010
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POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

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PANEL,iCONTROL POSITIONER, RECIPROCATOR

CONTROL NUMBER 1070103 REV. A11

SCALE: NTS
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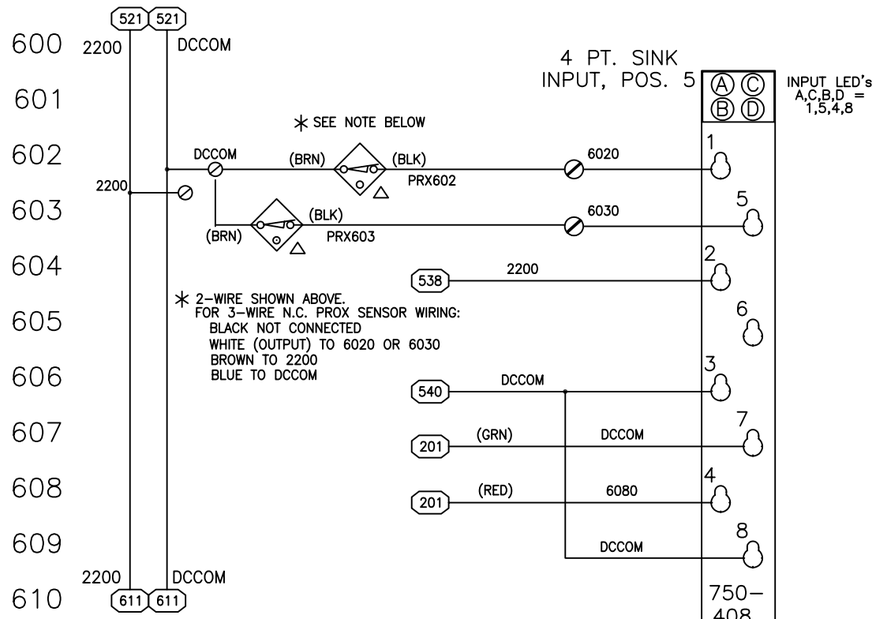
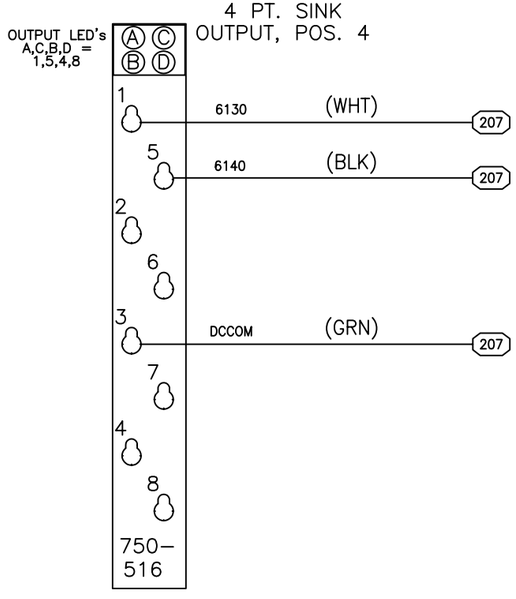


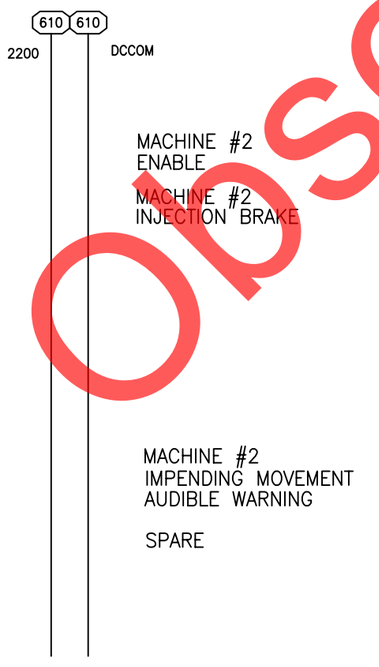
MACHINE #2
FORWARD LIMIT

MACHINE #2
REVERSE LIMIT

MACHINE #2
READY

MACHINE #2
RECIPROCATOR MOVEMENT
WARNING/DELAY DISABLE





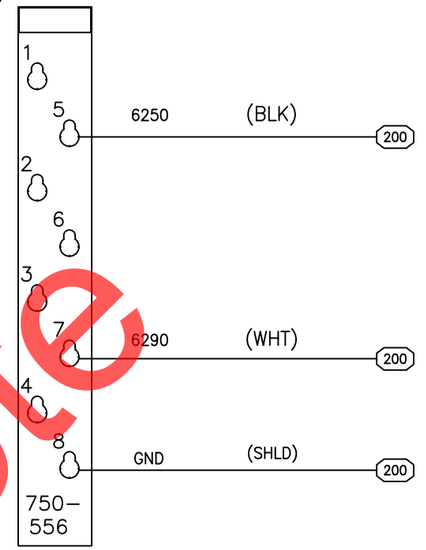
MACHINE #2
ENABLE

MACHINE #2
INJECTION BRAKE

MACHINE #2
IMPENDING MOVEMENT
AUDIBLE WARNING

SPARE

ANALOG OUTPUT
+/- 10 VDC



MACHINE #2
ANALOG OUTPUT (+)

MACHINE #2
ANALOG OUTPUT (-)

NOTE: ANALOG OUTPUT MODULE MUST BE PHYSICALLY POSITIONED AFTER ENCODER MODULE(S).

LEGEND
△- REMOTELY LOCATED DEVICE
⊘- GUN POSITIONER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 3JUN05
	MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE300399	PANEL,iCONTROL POSITIONER, RECIPROCATOR
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1070103 REV. A11
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 6 / 6

ITEM	DESIGNATION	MFG PART NO.	DESCRIPTION	QTY	MFG	NORDSON PART NO.	
0			REF DWG,ASSY PANEL,GUN POSITIONER	0		1078407	
101		A-1614CH	ENCLOSURE, CONT HINGE,16x14x6	1	HOFFMAN	1078420	
102		CUSTOM	LABEL SET, GUN POSITIONER	1	------	1078684	
103		8002-ISO	TAG,WARNING,ELECT SHOCK HAZARD,1.00x.88	1	SAFETY LABEL SOLUTIONS	1075692	
104			LABEL,IDENTIFICATION,1.00 X 2.00	1		1005678	
105		0514500000	TBACCY,DIN,RAIL,SLOT,35x2M-LG	.49M	WEIDMULLER,INC	239214	
106			SCR,HEX,SELF TAP,10-32X .500,Z	6		981137	
107		A-16P14	ENCLACCY,PANEL,14.75x12.88,14GA	1	HOFFMAN	1078422	
108		F1x3LG6	WIREWAY,1 X 3	.17	PANDUIT	1046393	
109	GROUND	PK7GTA	BUSBAR,GND,100A,7 POS	1	SQUARE D	1046405	
110	SC210	KBMG-212D WITH 8833	CONTROLLER,DC DRIVE W/ SP BD,GUN PSNR	1	KB ELECTRONICS	1046921	
111			SCR,HEX,SELF TAP,SLTD,8-32X.50,TYPE T,Z	4		1083981	
112	CB207	1DU10	CIRCUIT BREAKER,1 POLE,10 AMP,10-20 xl n	1	ALTECH	1078518	
113	CB210	1CU8	CIRCUIT BREAKER,1 POLE,8 AMP,5-10 xl n	1	ALTECH	1092954	
114	PWS219	SPD24301	POWER SUPPLY,DINRAIL MT,30W,24-28VDC	1	CARLO GAVAZZ1	1080749	
115			MODULE GROUP,I/O,WAGO	1	WAGO	1078669	*
116		C1LG6	COVER,1	1FT	PANDUIT	1046394	
117	FU217	1492-H6	FUSE HOLDER,DIN RAIL,1/4 X 1-1/4" FUSES	1	ALLEN BRADLEY	341366	
118	FU217	MDL-1-R	FUSE,2AMP,SLOBLO,250V,3AG,313	1	BUSSMANN	939016	
119	FU217	1492-N37	END,PLATE,AB FUSE	1	ALLEN BRADLEY	341367	
120		1492-J4	TERMINAL BLK,GRAY,IEC,22-10 AWG,JG4	30	ALLEN BRADLEY	1075583	
121		1492-EAJ35	ANCHOR,END	2	ALLEN BRADLEY	306318	
122	CR242	700-HLT1U1	RELAY,TERM BLK,SPDT,110/125V AC/DC	1	ALLEN BRADLEY	1071600	
123		1492-JG4	TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4	1	ALLEN BRADLEY	1075665	
124		1492-J4-Y	TERMINAL BLK,YELLOW,IEC,22-10 AWG,JG4	2	ALLEN BRADLEY	1075694	
125		1492-EBJ3	BARRIER,TBACCY,END,DIN,GRAY,J SERIES	2	ALLEN BRADLEY	1075584	
126			WIRE,105C,18GA,BLUE,600V	31.5		335174	
127			STRNDWIRE,14 AWG,YEL,600V,105C	3		1079956	
128			WIRE,VINYL,14AWG,GREEN W/YELLOW	4.75		931191	
129			WIRE,VINYL,14AWG,RED	7.5		931296	
130			WIRE,VINYL,14AWG,WHITE	3		931268	
131			WIRE,VINYL,18AWG,RED	9		931170	
132			STRAP,CABLE,.875DIA	7		939110	
133	PATCH CABLE	UTPCH2	CABLE,RJ45 TO RJ45,2FT	1	PANDUIT	282960	
134			PREFIX RESERVED	1		000000	
135			PREFIX RESERVED	1		000000	
136			TERMINAL,RINGTONG,INS,16-14,10	1		933054	
137			NUT,HEX,MACH,#10-32,BRASS	2		984129	
138			WASHER,LK,E,SPT,#10,STL,NI	1		983120	
139			WASHER,FLT,E,.203X.406X.040,BR	1		983021	
140		1492-CJLJ6-10	JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN	1	ALLEN BRADLEY	1078531	☆
141			QUIKCONN,INS,FEM,.250"X.032",14-16AWG	4		1049966	
142			TERMINAL,FLG.SPADE,INS,16-14,6	1		933184	
143			LABEL SET, PANEL WIRING FOR 1055889	1		1079873	
144			WASHER,LK,E,INT,#10,STL,ZN	4		983124	
145			LABEL,BLANK,3.00X5.00	1		603348	
146			MOUNT,CABLE STRAP	4		242837	
147			CONTROLLER,PROGRAMMED,GUN POS'R iCONTROL	1		1055963	
148		BPF-7/8	CAP,FLUSH,7/8 DIA.	3	CAPLUGS DIVISION	900809	
149		FIT-221-1/8 BLACK	TUBING,HEAT-SHRINK, .125ID	3 IN	ALPHA WIRE	931315	
150	CON211	1R3004A20F030	RECEPTICLE,3-PIN,FEMALE,16AWG,36LG	1	BRAD-HARRISON	------	
151	CON701	CKA-03I	BULKHEAD HOUSING	1	MENCOM	7750215	
152	CON701	CQF-12	INSERT,FEMALE,12 POLE	1	MENCOM	------	
153	CON701	CDFA 0.3	SOCKETS,FEMALE,CRIMP,28-22AWG	9	MENCOM	------	
154			PREFIX RESERVED	1		000000	

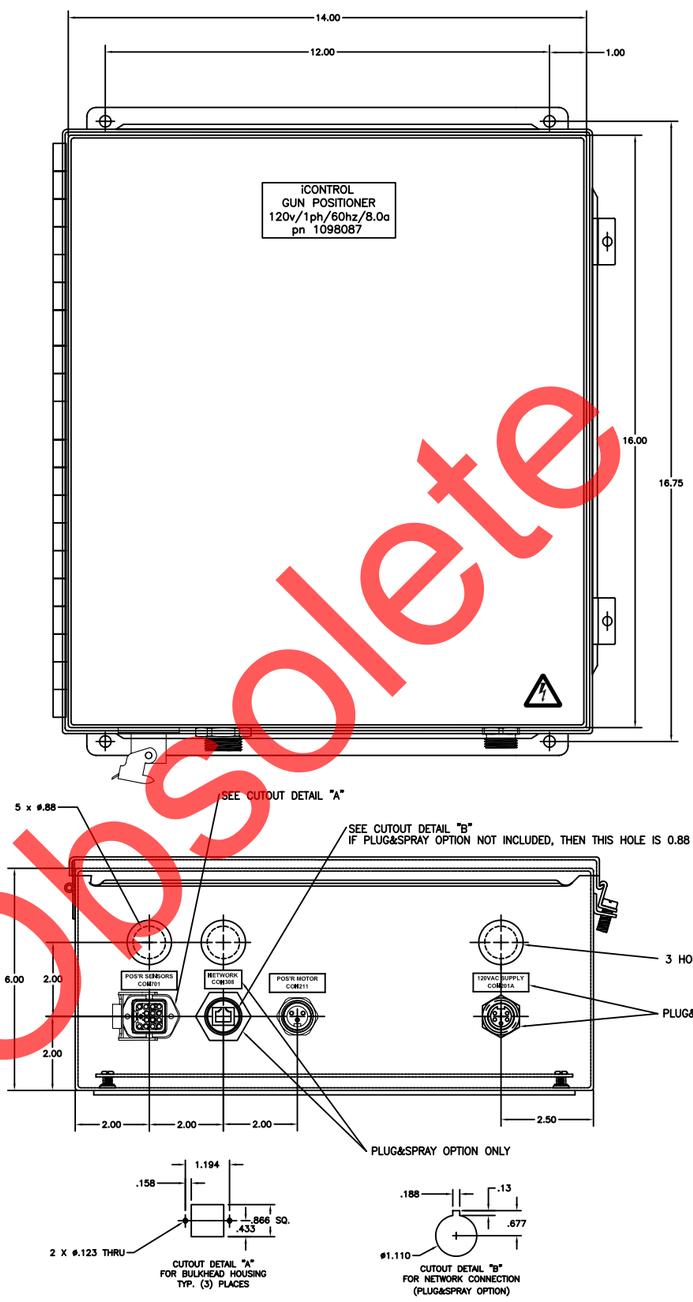
☆ CUT JUMPER AS NEEDED FOR REQUIRED LENGTHS.

OPTION: PLUG & SPRAY BOOTH B.O.M.

	DESIGNATION	PART NO.	ITEM	QTY	MFG.	NORDSON PART NO.
155	CON201A		NUT,LOCK,1/2 CONDUIT	1		984526
156	CON201A		SEAL,CONDUIT FITTING,1/2,BLUE	1		939122
157	CON201A	MIN-5MR-3	RECEPTACLE,5 PIN,MALE,16 AWG,36 IN LEADS	1	MENCOM	1087623
158	CON308	ENSP1F5	RECEPTACLE,FEMALE-FEMALE,BULKHEAD,RJ45	1	WOODHEAD	1091863

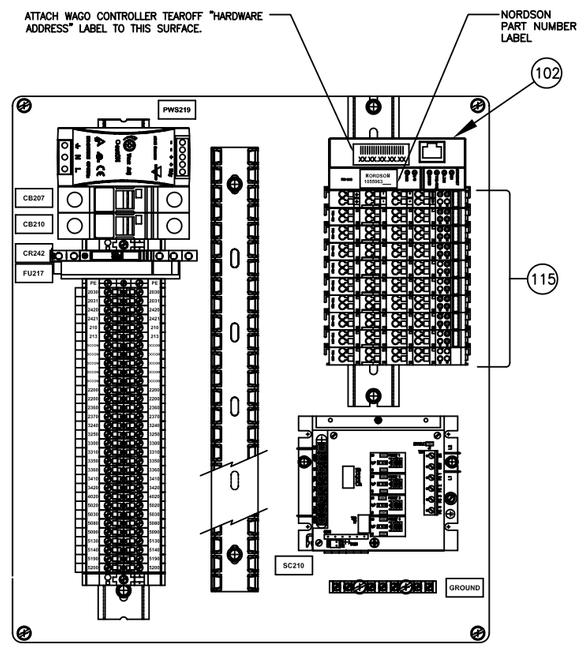
* ITEM 15 I/O MODULE GROUP COMPONENT BREAKDOWN.

MFG PART NO.	DESCRIPTION	QTY	MFG
750-408	4-CHANNEL DIGITAL INPUT MODULE DC 24V	4	WAGO
750-514	2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V	2	WAGO
750-516	4-CHANNEL DIGITAL OUTPUT MODULE DC 24V	1	WAGO
750-634	INCREMENTAL ENCODER INTERFACE	1	WAGO
750-600	END MODULE	1	WAGO



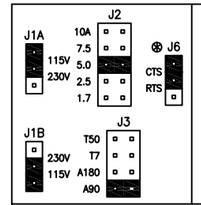
TERMINAL BLOCK LAYOUT

PE
2030
2031
2420
2421
210
213
DCCOM
DCCOM
DCCOM
DCCOM
DCCOM
2200
2200
2360
2370
3240
3250
3300
3310
3350
3360
3410
3420
4020
5020
5030
5080
5090
5130
5140
5190
5200

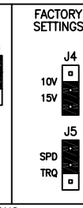


MULTI-SPEED BOARD JUMPER SETTINGS

DRIVE JUMPER SETTINGS



FACTORY SETTINGS



PRESET 1	LO - NO, R/F - F, HI - YES — FORWARD
PRESET 2	LO - NO, R/F - R, HI - YES — REVERSE
PRESET 3	LO - NO, R/F - R, HI - YES — BLOWOFF
PRESET 4	N/A

JUMPER POSITIONS

J1	J1A	J1B	J2	J3	J4	J5	J6
NO	115V	115V	5.0	A90	15V	SPD	CTS

⊛ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

ADJUST FOR DESIRED FORWARD SPEED
ADJUST FOR DESIRED REVERSE SPEED

MULTI SPEED BOARD POT	%CLOCKWISE
PRE 1	50-100%
PRE 2	50-100%
PRE 3	00%
PRE 4	N/A

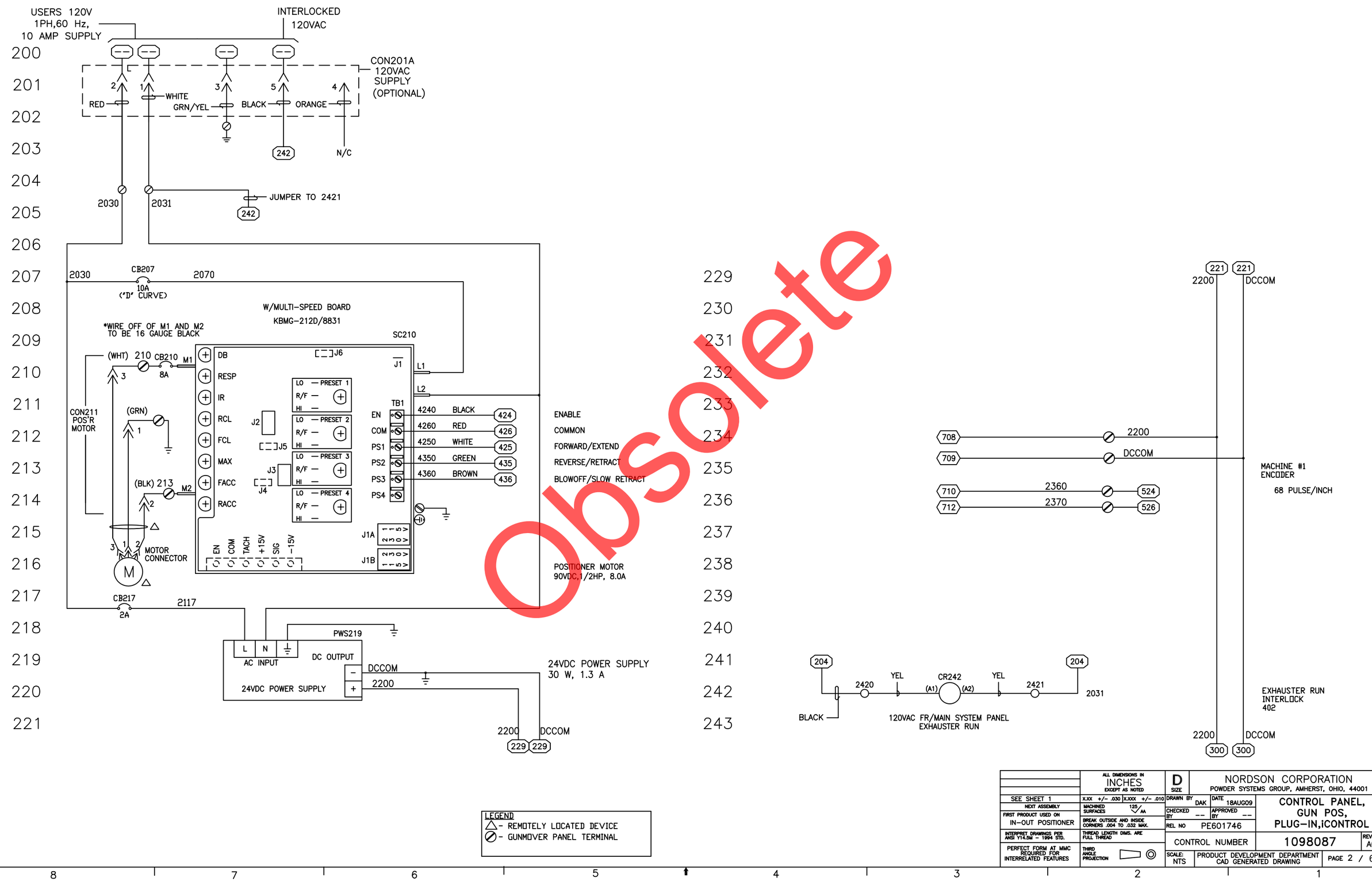
IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

MAINBOARD POT	% C.W.
DB	100%
RESP	50%
IR	25%
FCL	75%
RCL	75%
MAX	100%
FACC	0%
RACC	0%

NOTE:

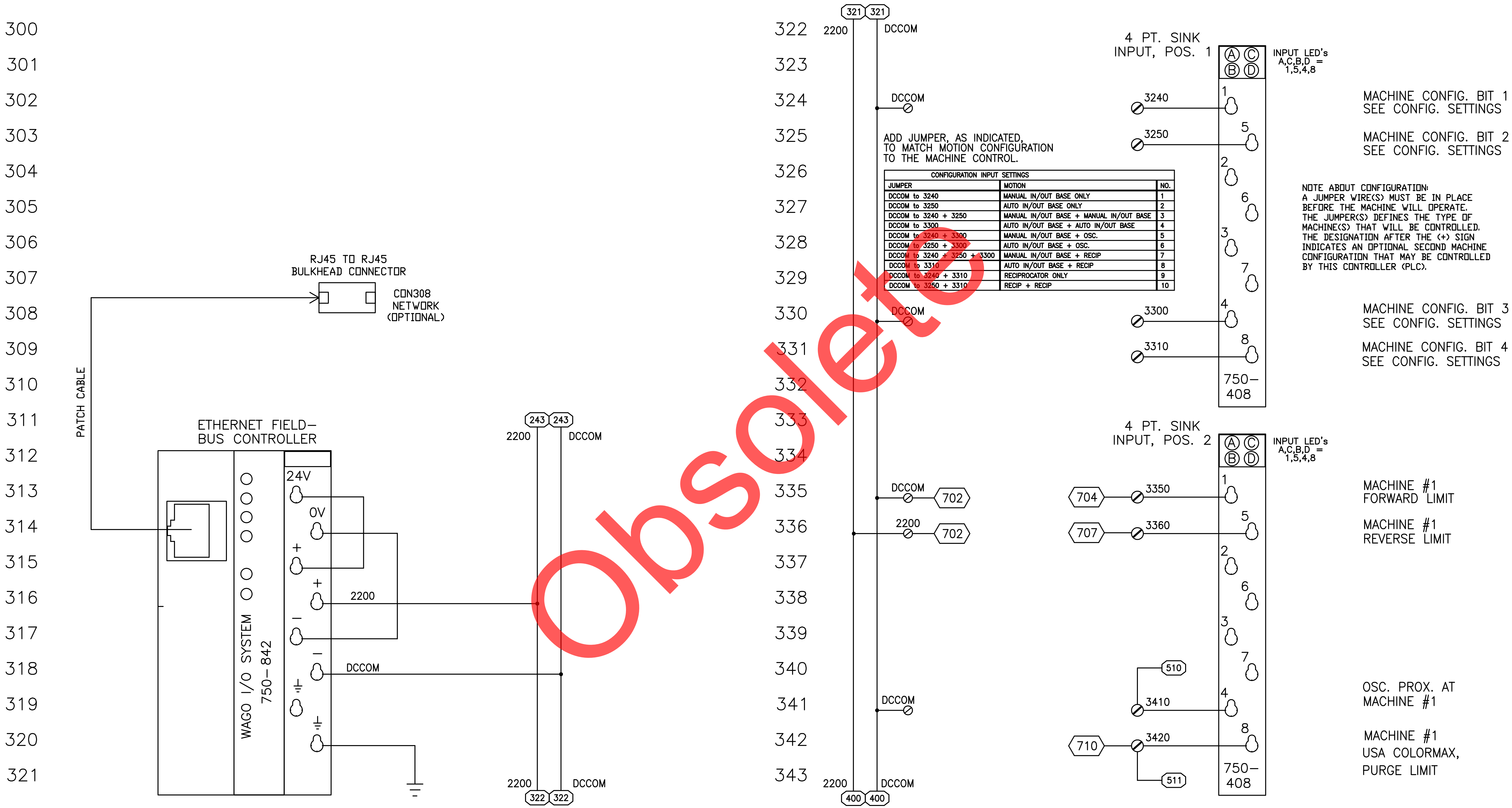
ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY DAK	DATE 18AUG09
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY ---
FIRST PRODUCT USED ON IN-OUT POSITIONER	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601746	CONTROL PANEL, GUN POSITIONER, PLUG-IN, iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1098087 REV. A01
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 1 / 6



LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

SEE SHEET 1	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
NEXT ASSEMBLY	X.XX +/- .030 X.XXX +/- .010	DRAWN BY DAK	DATE 18AUG09
FIRST PRODUCT USED ON IN-OUT POSITIONER	MACHINED SURFACES 125 µA	CHECKED BY --	APPROVED BY --
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601746	CONTROL PANEL, GUN POS, PLUG-IN,ICONTROL
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1098087 REV. A01
	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 2 / 6



ADD JUMPER, AS INDICATED,
TO MATCH MOTION CONFIGURATION
TO THE MACHINE CONTROL.

CONFIGURATION INPUT SETTINGS

JUMPER	MOTION	NO.
DCCOM to 3240	MANUAL IN/OUT BASE ONLY	1
DCCOM to 3250	AUTO IN/OUT BASE ONLY	2
DCCOM to 3240 + 3250	MANUAL IN/OUT BASE + MANUAL IN/OUT BASE	3
DCCOM to 3300	AUTO IN/OUT BASE + AUTO IN/OUT BASE	4
DCCOM to 3240 + 3300	MANUAL IN/OUT BASE + OSC.	5
DCCOM to 3250 + 3300	AUTO IN/OUT BASE + OSC.	6
DCCOM to 3240 + 3250 + 3300	MANUAL IN/OUT BASE + RECIP	7
DCCOM to 3310	AUTO IN/OUT BASE + RECIP	8
DCCOM to 3240 + 3310	RECIPROCATOR ONLY	9
DCCOM to 3250 + 3310	RECIP + RECIP	10

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE BEFORE THE MACHINE WILL OPERATE. THE JUMPER(S) DEFINES THE TYPE OF MACHINE(S) THAT WILL BE CONTROLLED. THE DESIGNATION AFTER THE (+) SIGN INDICATES AN OPTIONAL SECOND MACHINE CONFIGURATION THAT MAY BE CONTROLLED BY THIS CONTROLLER (PLC).

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

SEE SHEET 1	NEXT ASSEMBLY
FIRST PRODUCT USED ON	IN-OUT POSITIONER
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	
ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	
X.XX +/- .030	X.XXX +/- .010
MACHINED SURFACES	125/AA
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	
THREAD LENGTH DIMS. ARE FULL THREAD	
THIRD ANGLE PROJECTION	
SIZE	D
DRAWN BY	DAK
DATE	18AUG09
CHECKED BY	--
APPROVED BY	--
REL NO	PE601746
CONTROL NUMBER	1098087
REV.	A01
SCALE:	NTS

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

CONTROL PANEL,
GUN POSITIONER,
PLUG-IN, iCONTROL

PRODUCT DEVELOPMENT DEPARTMENT
CAD GENERATED DRAWING

IF COLORMAX SYSTEM WITH FEED CENTER,
SEE SYSTEM ELECTRICAL DRAWINGS FOR CONNECTION.
ALSO SEE SHEET 5

343 343

2200 DCCOM

4 PT. SINK INPUT, POS. 3

INPUT LED's A,C,B,D = 1,5,4,8

CR242 (11) (14)

4020

4030

SIGNAL FROM BOOTH CONTROL BOOTH FAN RUN

REMOTE E-STOP INPUT "ON" = E-STOP SET

RUN TEST AT MACHINE #1

RUN TEST AT MACHINE #2

MACHINE TEST FWD INPUT

MACHINE TEST REV INPUT

750-408

MACHINE TEST INSTRUCTIONS

TO ACTIVATE TESTING, CONNECT APPROPRIATE INPUT(S) TO "DCCOM".
IF TESTING MACHINE 1, CONNECT" RUN TEST AT MACHINE #1 INPUT TO "DCCOM".
IF TESTING MACHINE 2, CONNECT "RUN TEST AT MACHINE #2" INPUT TO "DCCOM".
MANUAL TESTING:
SELECT MACHINE 1 OR 2 INPUT.
RUN FORWARD BY CONNECTING FWD INPUT.
MACHINE SHOULD STOP AT FORWARD LIMIT.
RUN REVERSE BY CONNECTING REV INPUT.
MACHINE SHOULD STOP AT REVERSE LIMIT.
TO RUN REVERSE SLOW SPEED, TOGGLE INPUT 2 BEFORE CONNECTING INPUT 2. MACHINE SHOULD STOP AT REVERSE LIMIT.
AUTO TESTING:
FIRST RUN MANUAL TEST TO THE FORWARD, AND THEN TO THE REVERSE LIMITS. (THIS ACTION SETS AUTO TESTING LIMITS BASED ON ENCODER SIGNAL PROCESSING).
SELECT MACHINE 1 OR/AND MACHINE 2 INPUT.
TO RUN AN AUTO TEST CONNECT BOTH FWD AND REV INPUTS TO "DCCOM".
THE MACHINE(S) WILL RUN FORWARD AND REVERSE BETWEEN TWO POINTS, EACH POINT BEING 1/4 OF TOTAL DISTANCE FROM EACH LIMIT. REVERSE SPEED WILL ALTERNATE BETWEEN NORMAL AND BLOWOFF SPEED.
IF RECIPROCATOR, SPEED WILL BE 3/4 MAX.

DCCOM

2200 DCCOM

500 500

2 PT. RELAY OUTPUT, POS. 1

OUTPUT LED's A,C,B,D = 1,5,4,8

4240 → 211 — MACHINE #1 ENABLE

4250 → 212 — MACHINE #1 FORWARD

4260 → 212 — MACHINE #1 COMMON

4260

750-514

2 PT. RELAY OUTPUT, POS. 2

OUTPUT LED's A,C,B,D = 1,5,4,8

4350 → 213 — MACHINE #1 REVERSE

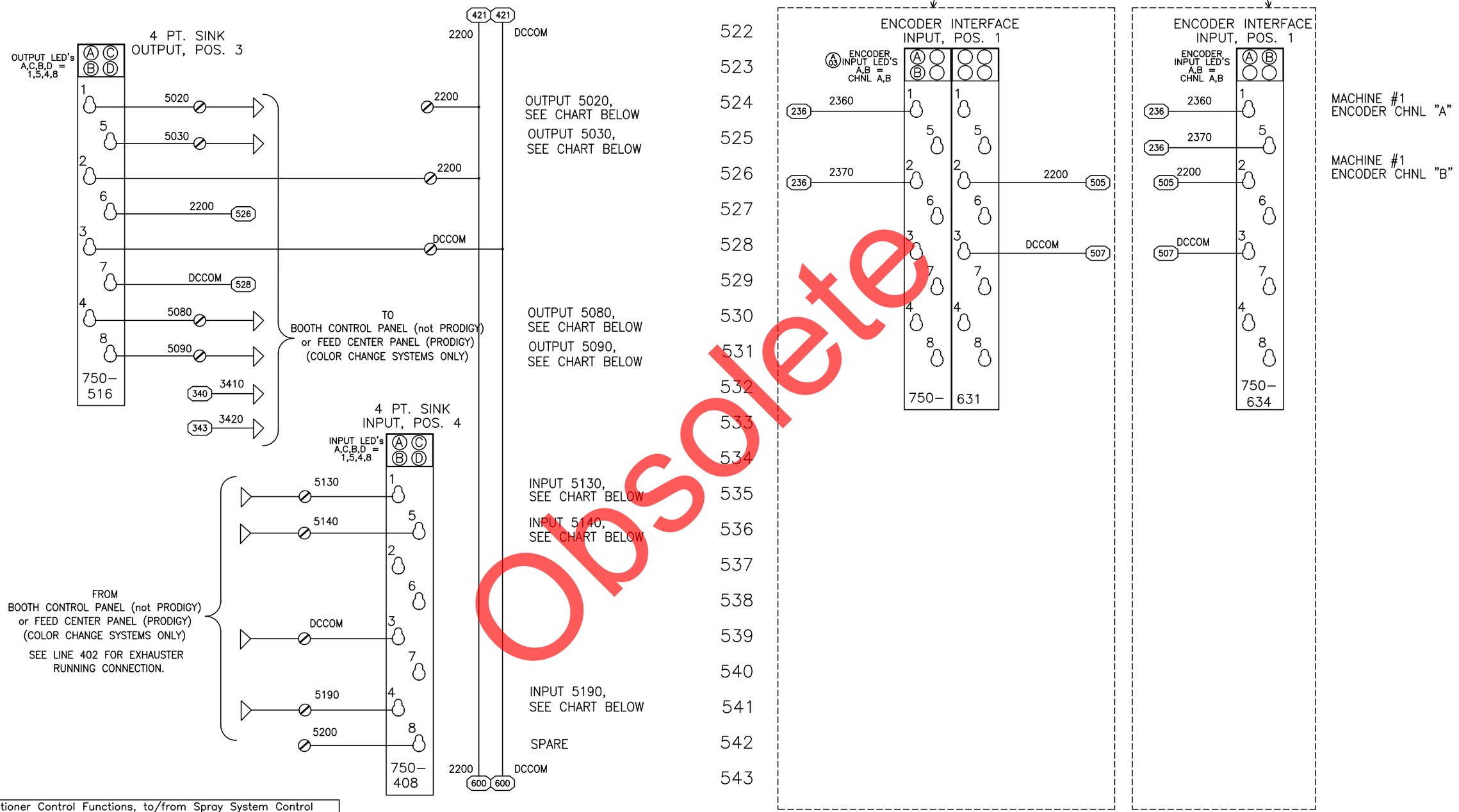
4360 → 213 — MACHINE #1 SLOW REVERSE

4260 — MACHINE #1 COMMON

750-514

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

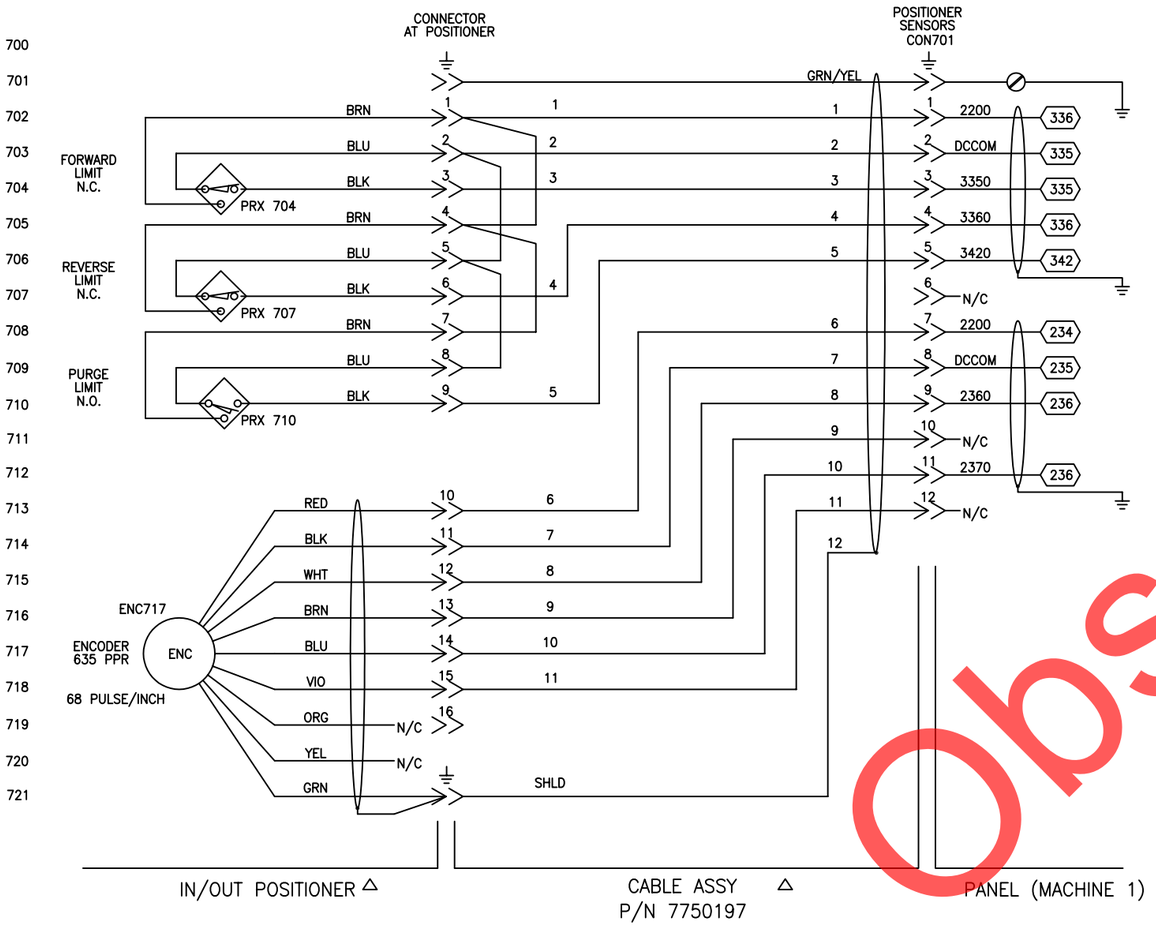
	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 3JUN05
	MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601746	CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1098087 REV. A01
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 4 / 6



Gun Positioner Control Functions, to/from Spray System Control			
Terminal	I/O	not Prodigy (GM1 & GM2)	Prodigy (GM1 only)
5020	OUTPUT	Mechanical Brake Control	Lockout (if Oscillator, Off = Lock)
5030	OUTPUT	External Blowoff Air Control	External Blowoff Air Control
5080	OUTPUT	Ready for Color Change	Spare
5090	OUTPUT	External Blowoff Cycle Complete	Purge & Blowoff Cycle Complete
5130	INPUT	Disable (Off = Disable)	Spare
5140	INPUT	Run External Blowoff Cycle	Run Color Change Cycle
5190	INPUT	Internal Purge Cycle Complete	Spare
5200	INPUT	Spare	Spare

LEGEND
△- REMOTELY LOCATED DEVICE
⊘- GUNMOVER PANEL TERMINAL

SEE SHEET 1	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
NEXT ASSEMBLY	X.XX +/- .030 X.XXX +/- .010	DRAWN BY DAK	DATE 19AUG09
FIRST PRODUCT USED ON IN-OUT POSITIONER	MACHINED SURFACES 125 AA	CHECKED BY --	APPROVED BY --
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601746	CONTROL PANEL, GUN POSITIONER, PLUG-IN, iCONTROL
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER 1098087	REV. A01
	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
			PAGE 5 / 6



LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUN POSITIONER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY DAK	DATE 30JUN09
	MACHINED SURFACES 125 µA	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601746	CONTROL PANEL, GUN POS, PLUG-IN,iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1098087 REV. A01
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 6 / 6

VENDOR'S BILL OF MATERIAL

DESIGNATION	QTY	ITEM	PART NO.	MFG.	
	1	ENCLOSURE	SEE INVERTER CHART	HOFFMAN	
	1	SUB-PLATE	C-P2424	HOFFMAN	
	A/R	DIN RAIL	D5PD2-20	CUTLER-HAMMER	
	4	END ANCHOR	C383ES35	CUTLER-HAMMER	
	2	END PLATE	C383AP4	CUTLER-HAMMER	
	46	TERMINAL BLOCK	C383RK254	CUTLER-HAMMER	
	1	JUMPER	C383JC402	CUTLER-HAMMER	
GND	1	GROUND TERMINAL	PK7GTA	SQUARE D	
	1	GROUND LUG	----	----	
CB210	1	CIRCUIT BREAKER, 8A	WMS1C8	CUTLER-HAMMER	
CB207	1	CIRCUIT BREAKER, 10A	WMS1D10	CUTLER-HAMMER	
CB217	1	CIRCUIT BREAKER, 2A	WMS1C2	CUTLER-HAMMER	
	A/R	WIRE DUCT, 1" x 3"	---	--	
	1	WORKING SPACE CAUTION LABEL, SAFETY YELLOW WITH BLACK ENGRAVING	CUSTOM	--	
CR242	1	RELAY, 120VAC, SPDT, DIN-RAIL MOUNT	700-HLT1U1	ALLEN-BRADLEY	
MMC203	1	MANUAL MOTOR CONTROLLER	SEE INVERTER CHART	CUTLER-HAMMER	
PWS219	1	POWER SUPPLY, 30 WATT	PS5R-SC24	IDEC	
DISC201	1	DISCONNECT SWITCH	OT16F3	ABB	
DISC201	1	HANDLE	OHBS2AJ	ABB	
DISC201	1	SHAFT	0XS6S180	ABB	
DISC201	1	ADAPTER, PADLOCK, OPEN PANEL	DS-SA1	ABB	
DISC201A	1	N.O. AUX. CONTACT, DISCONNECT	OA1G10	ABB	
VFD203	1	INVERTER, 3-PH	SEE INVERTER CHART	ALLEN-BRADLEY	
SC210	1	DC DRIVE	KBMG-212D	KB ELECTRONICS	
SC210	1	MULTI-SPEED BOARD	8833	KB ELECTRONICS	
CON201C,CON701,CON723	3	BULKHEAD HOUSING	CKA-03I	MENCOM	
CON701,CON723	2	INSERT,FEMALE,12 POLE	CQF-12	MENCOM	
CON201C	1	INSERT,FEMALE,4 POLE	CKSF-04	MENCOM	
CON201C	1	ID66/67 SEAL KIT	CKR 65	MENCOM	
CON701,CON723	17	SOCKETS,FEMALE,CRIMP,26-22AWG	CDFA 0.3	MENCOM	
CON211	1	RECEPTICLE,3-PIN,FEMALE,16AWG,36LG	1R3004A20F030	BRAD-HARRISON	
	2	CAP,FLUSH,7/8 DIA.	BPF-7/8	CAPLUGS DIVISION	
SC205	1	EMI SUPPRESSION CORE, SPLIT HALVES (SC205)	0443167251	FAIR-RITE	#
	1	PROGRAMMED ETHERNET FIELDBUS CONTROLLER, WAGO pn750-842	SEE ITEM 02	NORDSON	
	5	MODULE, INPUT, SINK, 4 PT.	750-408	WAGO	
	2	MODULE, OUTPUT, SINK, 4 PT.	750-516	WAGO	
	2	MODULE, OUTPUT, RELAY, 2 PT.	750-514	WAGO	
	2	MODULE, INTERFACE, ENCODER	750-631	WAGO	*
		MODULE, INTERFACE, ENCODER	750-634	WAGO	*
	1	MODULE, OUTPUT, ALG., +/- 10VDC	750-556	WAGO	
	1	MODULE, END	750-600	WAGO	

* - 750-631 AND 750-634 ARE INTERCHANGABLE MODULES, 750-634 REPLACING 750-631.

- MARK THIS ITEM AS "SC205". FOR SHIPMENT, SECURE VIA CLEAR PACKING TAPE TO THE FRONT COVER OF THE INVERTER, ITEM VFD203.

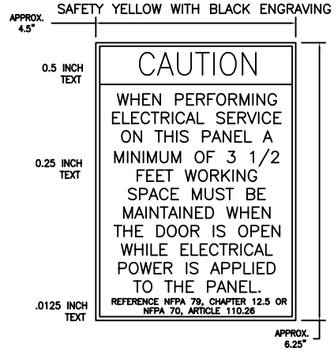
OPTION: PLUG & SPRAY BOOTH B.O.M.

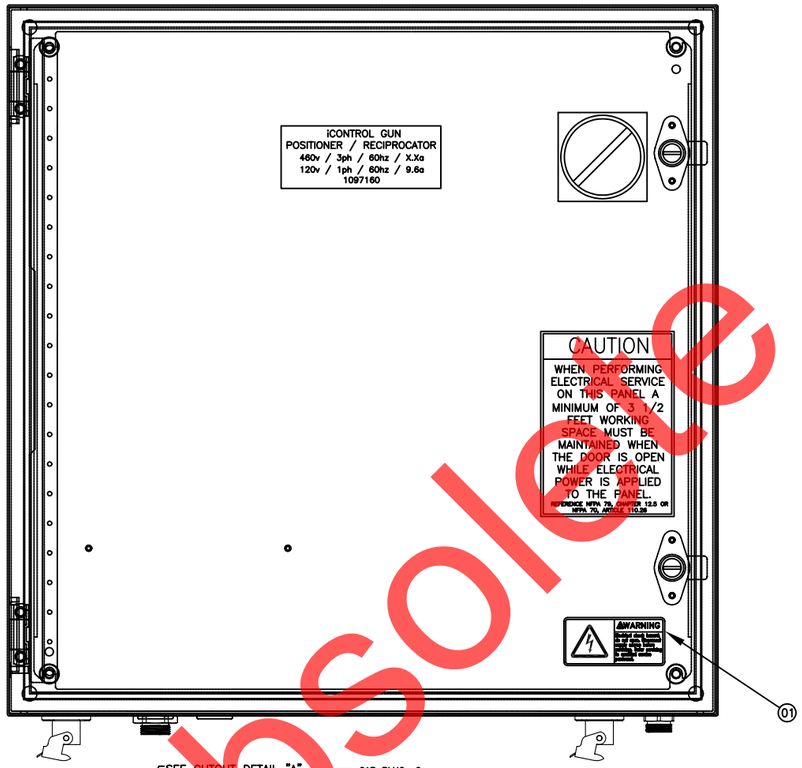
DESIGNATION	QTY	ITEM	PART NO.	MFG.
CON201A	1	RECEPTICLE,5-PIN,MALE,16AWG,36LG	IR5006A20F030	BRAD-HARRISON
CON201B	1	RECEPTICLE,4-PIN,MALE,14AWG,36LG	1R4006A28F030G	BRAD-HARRISON
CON308	1	RECEPTACLE,FEMALE-FEMALE,BULKHEAD,RJ45	ENSP1F5	BRAD-HARRISON
PATCH CABLE	1	PATCH CABLE, CAT5e, T568B, ETHERNET, 48"	----	----

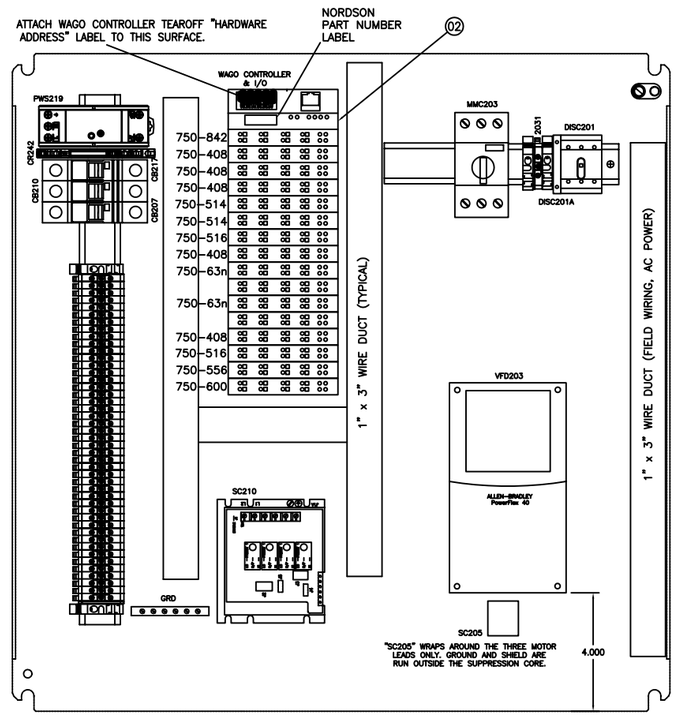
INVERTER CHART

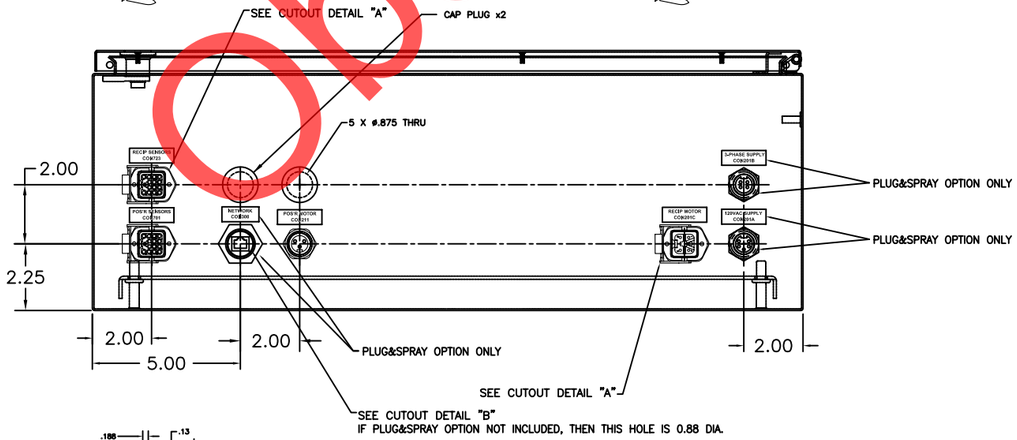
3-PH VOLTS	208	230	380	480	575
CONTROLLER	XTPB010BC1	XTPB6P3BC1	XTPB004BC1	XTPB004BC1	XTPB2P5BC1
INVERTER	22B-B8P0N104		22B-D4P0N104		22B-E3P0N104
ENCLOSURE	C-SD24248				

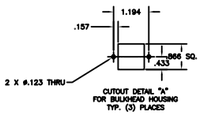
WORK SPACE CAUTION LABEL
SAFETY YELLOW WITH BLACK ENGRAVING

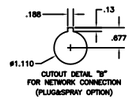


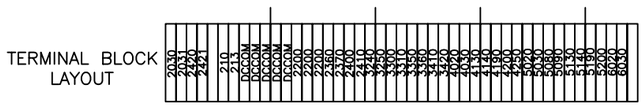


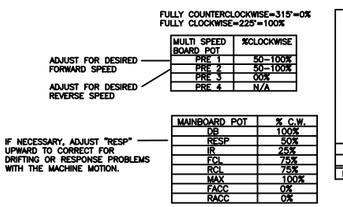


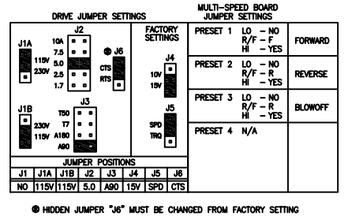












ITEM	ICT	PART NO.	DESCRIPTION	QTY.
02	L	1055963	CONTROLLER,PROGRAMMED,GUN POS'R iCONTROL	1
01	L	226709	LABEL, WARNING, CONTROL PANEL	1

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED

X.XX +/- .030 X.XXX +/- .010

MACHINED SURFACES 125 AA

BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.

INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.

THREAD LENGTH DIMS. ARE FULL THREAD

PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

THIRD ANGLE PROJECTION

D SIZE

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DRAWN BY DAK DATE 3JUN05

CHECKED BY BL APPROVED BY BL

REL NO PE601746

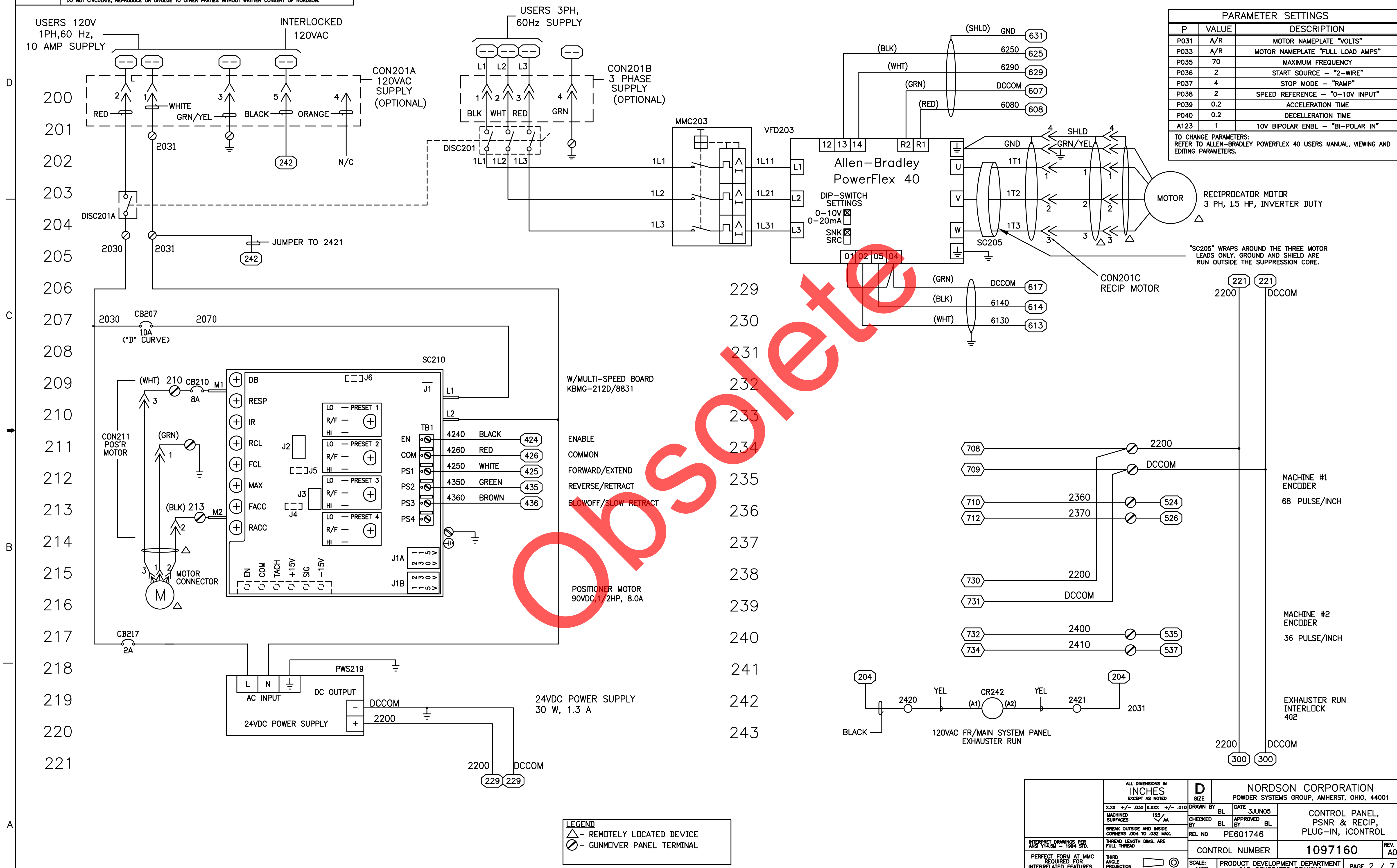
CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL

CONTROL NUMBER 1097160 REV. A01

SCALE: NTS

PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING

1097160


USERS 120V 1PH,60 Hz, 10 AMP SUPPLY
INTERLOCKED 120VAC
USERS 3PH, 60Hz SUPPLY
CON201A 120VAC SUPPLY (OPTIONAL)
CON201B 3 PHASE SUPPLY (OPTIONAL)
RED
WHITE
GRN/YEL
BLACK
ORANGE
N/C
2031
2030
DISC201A
DISC201
JUMPER TO 2421
BLK WHT RED GRN
MMC203
VFD203
Allen–Bradley PowerFlex 40
DIP–SWITCH SETTINGS
0–10V
0–20mA
SNK
SRC
SC205
(SHLD) GND
(BLK) 6250
(WHT) 6290
(GRN) DCCOM
(RED) 6080
SHLD
GRN/YEL
MOTOR
RECIPROCATOR MOTOR 3 PH, 1.5 HP, INVERTER DUTY
"SC205" WRAPS AROUND THE THREE MOTOR LEADS ONLY. GROUND AND SHIELD ARE RUN OUTSIDE THE SUPPRESSION CORE.
CON201C RECIP MOTOR
(GRN) DCCOM
(BLK) 6140
(WHT) 6130
CB207 10A ('D' CURVE)
2070
SC210
CB210 8A
CON211 POS'R MOTOR
MOTOR CONNECTOR
DB RESP IR RCL FCL MAX FACC RACC
PRESET 1 PRESET 2 PRESET 3 PRESET 4
EN COM PS1 PS2 PS3 PS4
4240 BLACK
4260 RED
4250 WHITE
4350 GREEN
4360 BROWN
W/MULTI–SPEED BOARD KBMG–212D/8831
ENABLE
COMMON
FORWARD/EXTEND
REVERSE/RETRACT
BLOWOFF/SLOW RETRACT
POSITIONER MOTOR 90VDC,1/2HP, 8.0A
CB217 2A
PWS219
AC INPUT
DC OUTPUT
24VDC POWER SUPPLY
24VDC POWER SUPPLY 30 W, 1.3 A
MACHINE #1 ENCODER 68 PULSE/INCH
MACHINE #2 ENCODER 36 PULSE/INCH
EXHAUSTER RUN INTERLOCK 402
120VAC FR/MAIN SYSTEM PANEL EXHAUSTER RUN
CR242
YEL
BLACK
2420
2421
LEGEND
– REMOTELY LOCATED DEVICE
– GUNMOVER PANEL TERMINAL
Obsolete

PARAMETER SETTINGS

P	VALUE	DESCRIPTION
P031	A/R	MOTOR NAMEPLATE "VOLTS"
P033	A/R	MOTOR NAMEPLATE "FULL LOAD AMPS"
P035	70	MAXIMUM FREQUENCY
P036	2	START SOURCE – "2–WIRE"
P037	4	STOP MODE – "RAMP"
P038	2	SPEED REFERENCE – "0–10V INPUT"
P039	0.2	ACCELERATION TIME
P040	0.2	DECELLERATION TIME
A123	1	10V BIPOLAR ENBL – "BI–POLAR IN"

TO CHANGE PARAMETERS: REFER TO ALLEN–BRADLEY POWERFLEX 40 USERS MANUAL, VIEWING AND EDITING PARAMETERS.

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

CONTROL PANEL, PSNR & RECIP, PLUG–IN, iCONTROL

DRAWN BY BL — DATE 3JUN05 — CHECKED BY BL — APPROVED BY BL — REL NO PE601746 — SIZE D — SCALE: NTS

CONTROL NUMBER 1097160 — REV. A01

PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING

RJ45 TO RJ45
BULKHEAD CONNECTOR

CON308
NETWORK
(OPTIONAL)

PATCH CABLE

ETHERNET FIELD–
BUS CONTROLLER

WAGO I/O SYSTEM
750–842

24V
0V
2200
DCCOM

243 243
2200 DCCOM
2200 DCCOM
322 322

321 321
2200 DCCOM

DCCOM
ADD JUMPER, AS INDICATED,
TO MATCH MOTION CONFIGURATION
TO THE MACHINE CONTROL.

CONFIGURATION INPUT SETTINGS		
JUMPER	MOTION	NO.
DCCOM to 3240	MANUAL IN/OUT BASE ONLY	1
DCCOM to 3250	AUTO IN/OUT BASE ONLY	2
DCCOM to 3240 + 3250	MANUAL IN/OUT BASE + MANUAL IN/OUT BASE	3
DCCOM to 3300	AUTO IN/OUT BASE + AUTO IN/OUT BASE	4
DCCOM to 3240 + 3300	MANUAL IN/OUT BASE + OSC.	5
DCCOM to 3250 + 3300	AUTO IN/OUT BASE + OSC.	6
DCCOM to 3240 + 3250 + 3300	MANUAL IN/OUT BASE + RECIP	7
DCCOM to 3310	AUTO IN/OUT BASE + RECIP	8
DCCOM to 3240 + 3310	RECIPROCATOR ONLY	9
DCCOM to 3250 + 3310	RECIP + RECIP	10

4 PT. SINK
INPUT, POS. 1

INPUT LED's
A,C,B,D =
1,5,4,8

DCCOM
3240
3250
JUMPER
3300
3310

750–
408

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE
BEFORE THE MACHINE WILL OPERATE.
THE JUMPER(S) DEFINES THE TYPE OF
MACHINE(S) THAT WILL BE CONTROLLED.
THE DESIGNATION AFTER THE (+) SIGN
INDICATES AN OPTIONAL SECOND MACHINE
CONFIGURATION THAT MAY BE CONTROLLED
BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS

DCCOM 702
2200 702
DCCOM
2200 DCCOM
400 400

4 PT. SINK
INPUT, POS. 2

INPUT LED's
A,C,B,D =
1,5,4,8

704 3350
707 3360
510 3410
710 3420
511

750–
408

MACHINE #1
FORWARD LIMIT

MACHINE #1
REVERSE LIMIT

MACHINE #1

MACHINE #1
USA COLORMAX,
PURGE LIMIT

LEGEND
△ – REMOTELY LOCATED DEVICE
⊘ – GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001	
X.XX +/– .030 X.XXX +/– .010	DRAWN BY BL	DATE 3JUN05	CONTROL PANEL, PSNR & RECIP, PLUG–IN, iCONTROL
MACHINED SURFACES 125 µM	CHECKED BY BL	APPROVED BY BL	
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601746		
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1097160 REV. A01
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 3 / 7

IF COLORMAX SYSTEM WITH FEED CENTER, SEE SYSTEM ELECTRICAL DRAWINGS FOR CONNECTION. ALSO SEE SHEET 5

343 343

2200 DCCOM

4 PT. SINK INPUT, POS. 3

INPUT LED's A,C,B,D = 1,5,4,8

CR242 (11) (14)

4020

4030

SIGNAL FROM BOOTH CONTROL BOOTH FAN RUN

REMOTE E-STOP INPUT "ON" = E-STOP SET

RUN TEST AT MACHINE #1

RUN TEST AT MACHINE #2

MACHINE TEST FWD INPUT

MACHINE TEST REV INPUT

750-408

MACHINE TEST INSTRUCTIONS

TO ACTIVATE TESTING, CONNECT APPROPRIATE INPUT(S) TO "DCCOM".
IF TESTING MACHINE 1, CONNECT" RUN TEST AT MACHINE #1 INPUT TO "DCCOM".
IF TESTING MACHINE 2, CONNECT "RUN TEST AT MACHINE #2" INPUT TO "DCCOM".
MANUAL TESTING:
SELECT MACHINE 1 OR 2 INPUT.
RUN FORWARD BY CONNECTING FWD INPUT.
MACHINE SHOULD STOP AT FORWARD LIMIT.
RUN REVERSE BY CONNECTING REV INPUT.
MACHINE SHOULD STOP AT REVERSE LIMIT.
TO RUN REVERSE SLOW SPEED, TOGGLE INPUT 2 BEFORE CONNECTING INPUT 2. MACHINE SHOULD STOP AT REVERSE LIMIT.
AUTO TESTING:
FIRST RUN MANUAL TEST TO THE FORWARD, AND THEN TO THE REVERSE LIMITS. (THIS ACTION SETS AUTO TESTING LIMITS BASED ON ENCODER SIGNAL PROCESSING).
SELECT MACHINE 1 OR/AND MACHINE 2 INPUT.
TO RUN AN AUTO TEST CONNECT BOTH FWD AND REV INPUTS TO "DCCOM".
THE MACHINE(S) WILL RUN FORWARD AND REVERSE BETWEEN TWO POINTS, EACH POINT BEING 1/4 OF TOTAL DISTANCE FROM EACH LIMIT. REVERSE SPEED WILL ALTERNATE BETWEEN NORMAL AND BLOWOFF SPEED.
IF RECIPROCATOR, SPEED WILL BE 3/4 MAX.

DCCOM

2200 DCCOM

500 500

2 PT. RELAY OUTPUT, POS. 1

OUTPUT LED's A,C,B,D = 1,5,4,8

4240 → 211 — MACHINE #1 ENABLE

4250 → 212 — MACHINE #1 FORWARD

4260 → 212 — MACHINE #1 COMMON

4260

750-514

2 PT. RELAY OUTPUT, POS. 2

OUTPUT LED's A,C,B,D = 1,5,4,8

4350 → 213 — MACHINE #1 REVERSE

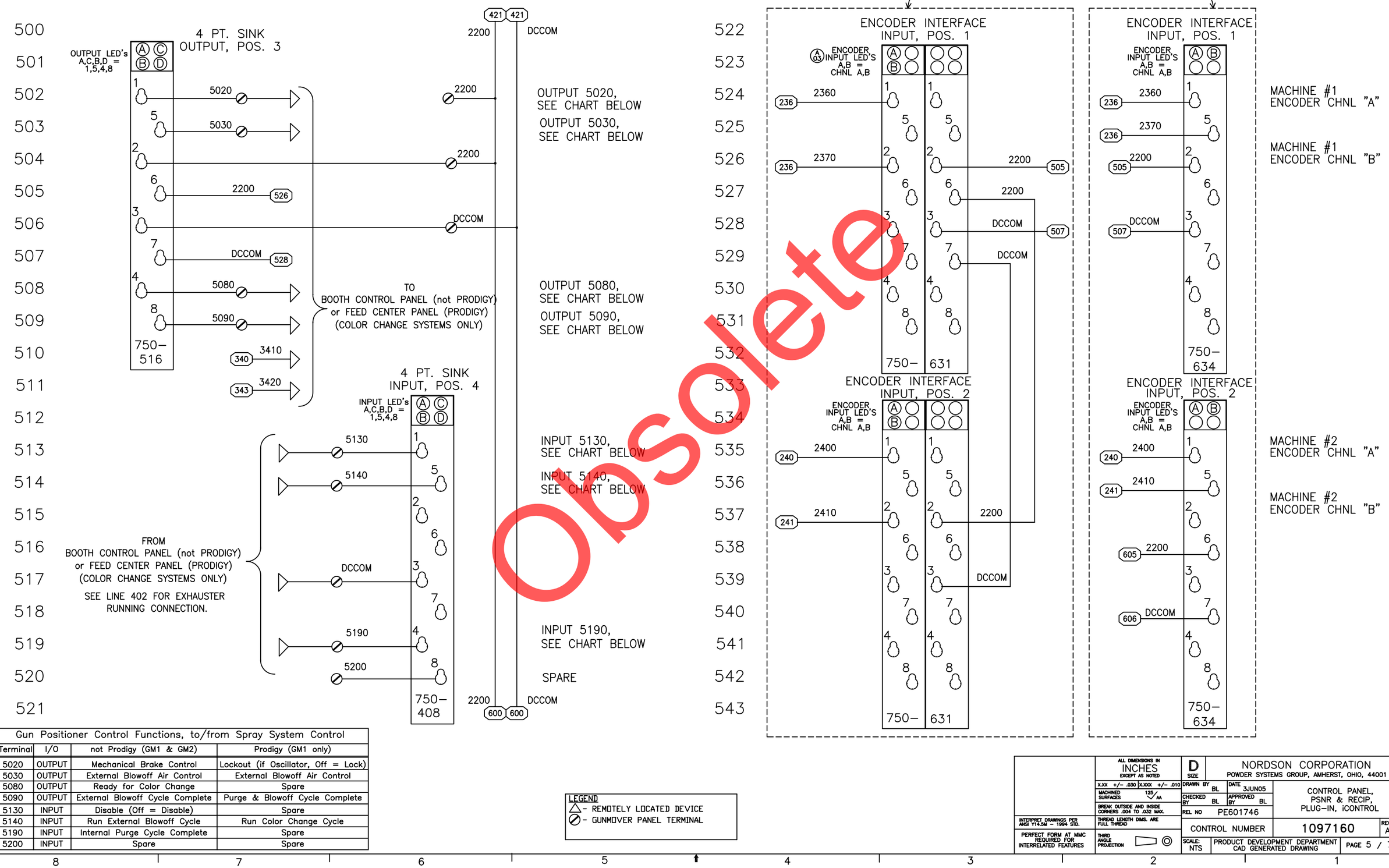
4360 → 213 — MACHINE #1 SLOW REVERSE

4260 — MACHINE #1 COMMON

750-514

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001	
X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 3JUN05	CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL
MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL	
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601746		
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1097160 REV. A01
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 4 / 7



Gun Positioner Control Functions, to/from Spray System Control			
Terminal	I/O	not Prodigy (GM1 & GM2)	Prodigy (GM1 only)
5020	OUTPUT	Mechanical Brake Control	Lockout (if Oscillator, Off = Lock)
5030	OUTPUT	External Blowoff Air Control	External Blowoff Air Control
5080	OUTPUT	Ready for Color Change	Spare
5090	OUTPUT	External Blowoff Cycle Complete	Purge & Blowoff Cycle Complete
5130	INPUT	Disable (Off = Disable)	Spare
5140	INPUT	Run External Blowoff Cycle	Run Color Change Cycle
5190	INPUT	Internal Purge Cycle Complete	Spare
5200	INPUT	Spare	Spare

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED
X.XX +/- .030 X.XXX +/- .010
MACHINED SURFACES 125 µm
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.
THREAD LENGTH DIMS. ARE FULL THREAD
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES
THIRD ANGLE PROJECTION

D SIZE

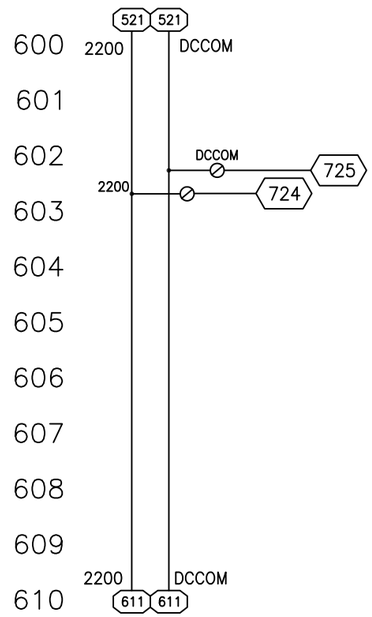
NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

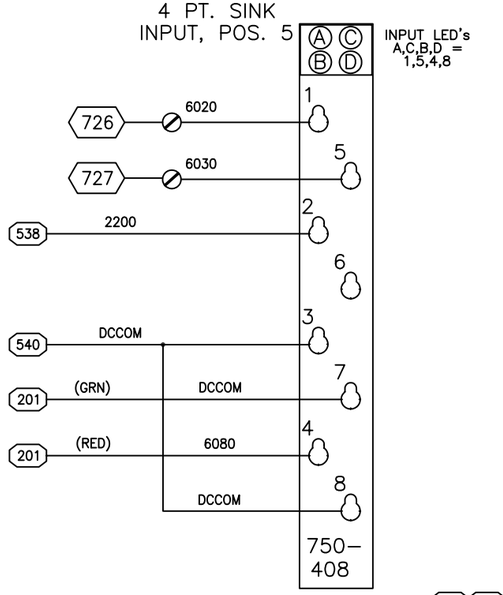
DRAWN BY BL DATE 3JUN05
CHECKED BY BL APPROVED BY BL
REL NO PE601746

CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL

CONTROL NUMBER 1097160 REV. A01

SCALE: NTS
PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING



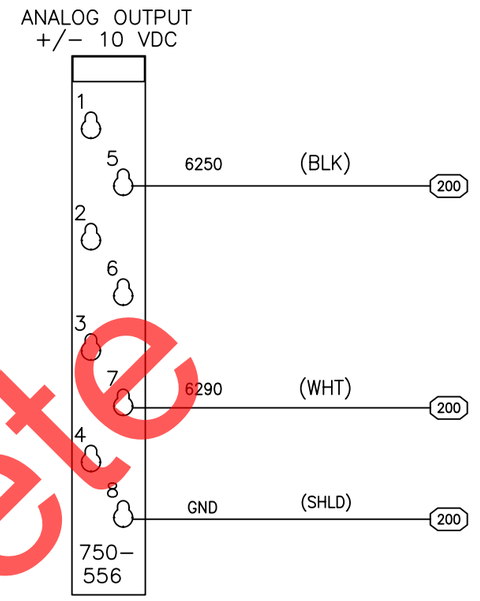


MACHINE #2
FORWARD LIMIT

MACHINE #2
REVERSE LIMIT

MACHINE #2
READY

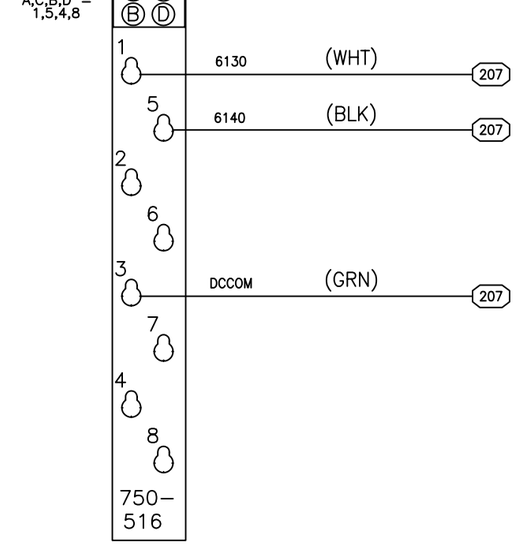
MACHINE #2
RECIPROCATOR MOVEMENT
WARNING/DELAY DISABLE

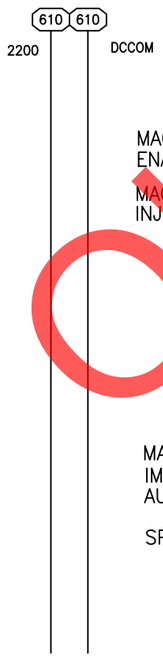


MACHINE #2
ANALOG OUTPUT (+)

MACHINE #2
ANALOG OUTPUT (–)

NOTE: ANALOG OUTPUT MODULE MUST BE PHYSICALLY POSITIONED AFTER ENCODER MODULE(S).





MACHINE #2
ENABLE

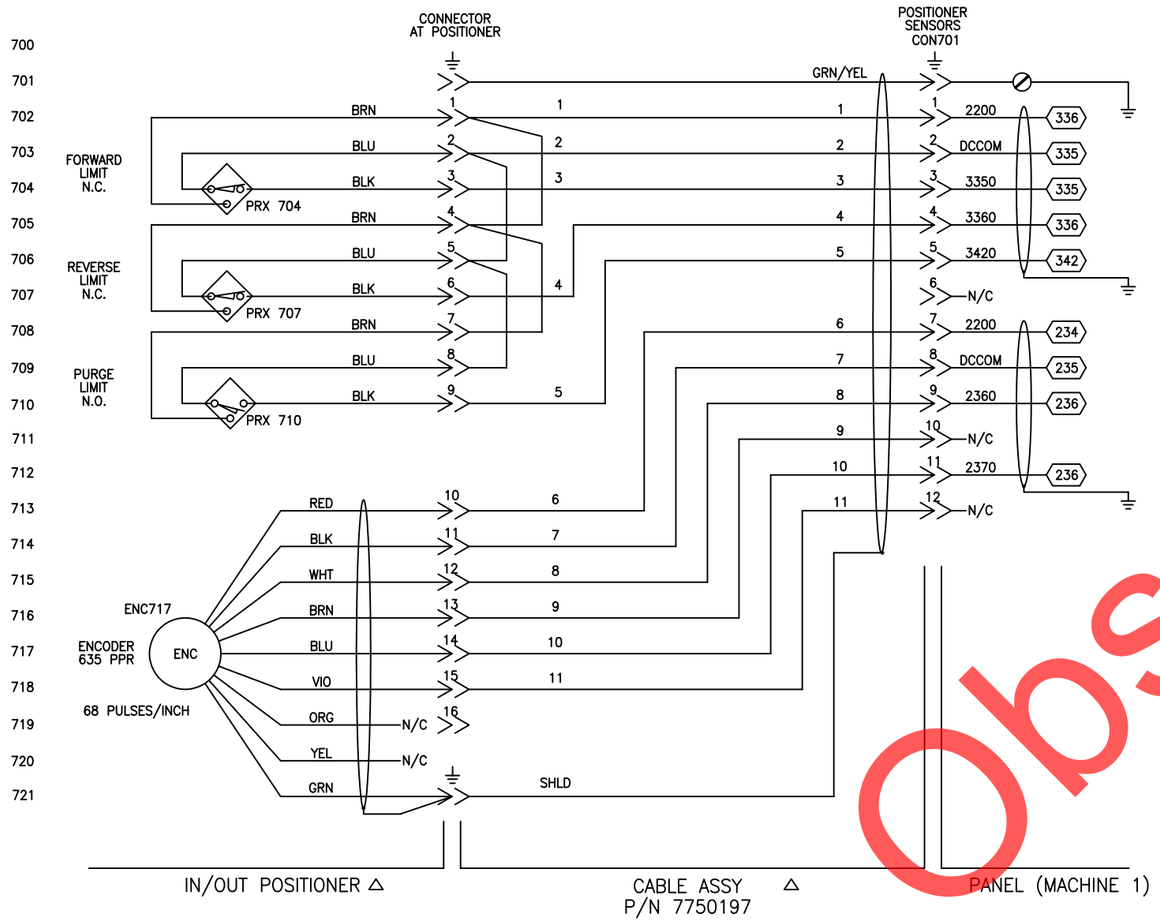
MACHINE #2
INJECTION BRAKE

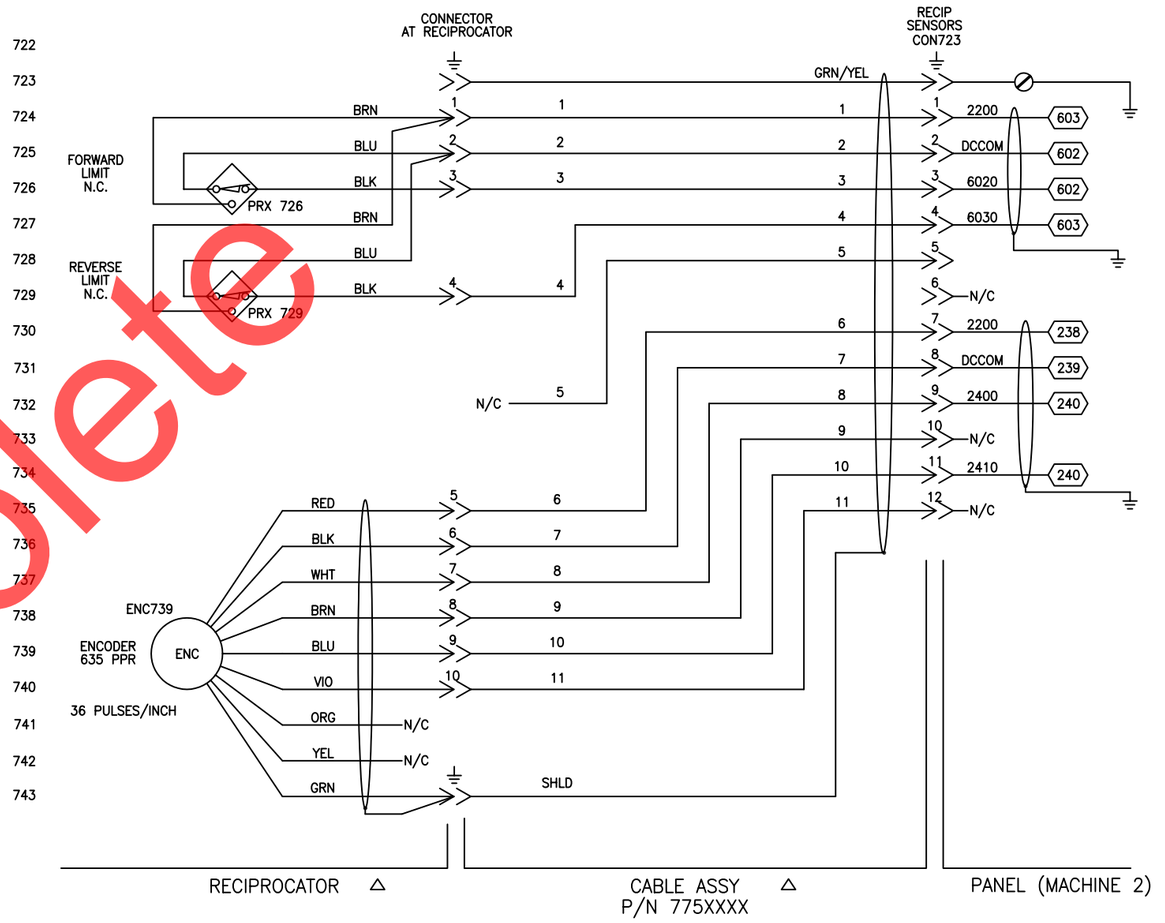
MACHINE #2
IMPENDING MOVEMENT
AUDIBLE WARNING

SPARE

LEGEND
△– REMOTELY LOCATED DEVICE
⊘– GUN POSITIONER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/– .030 X.XXX +/– .010	DRAWN BY BL	DATE 3JUN05
	MACHINED SURFACES 125 µin	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601746	CONTROL PANEL, PSNR & RECIP, PLUG–IN, iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1097160 REV. A01
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 6 / 7





LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUN POSITIONER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY DAK	DATE 30JUN09
	MACHINED SURFACES 125 µA	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601746	CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1097160 REV. A01
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 7 / 7

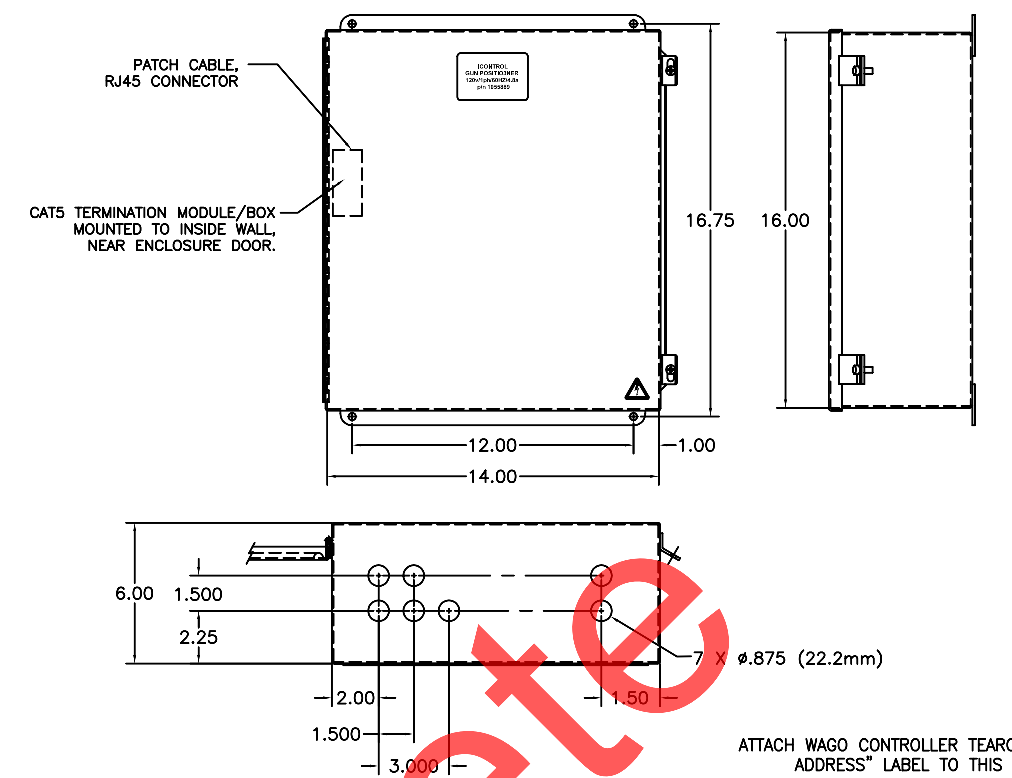
LABEL,IDENTIFICATION,1.00 X 2.00

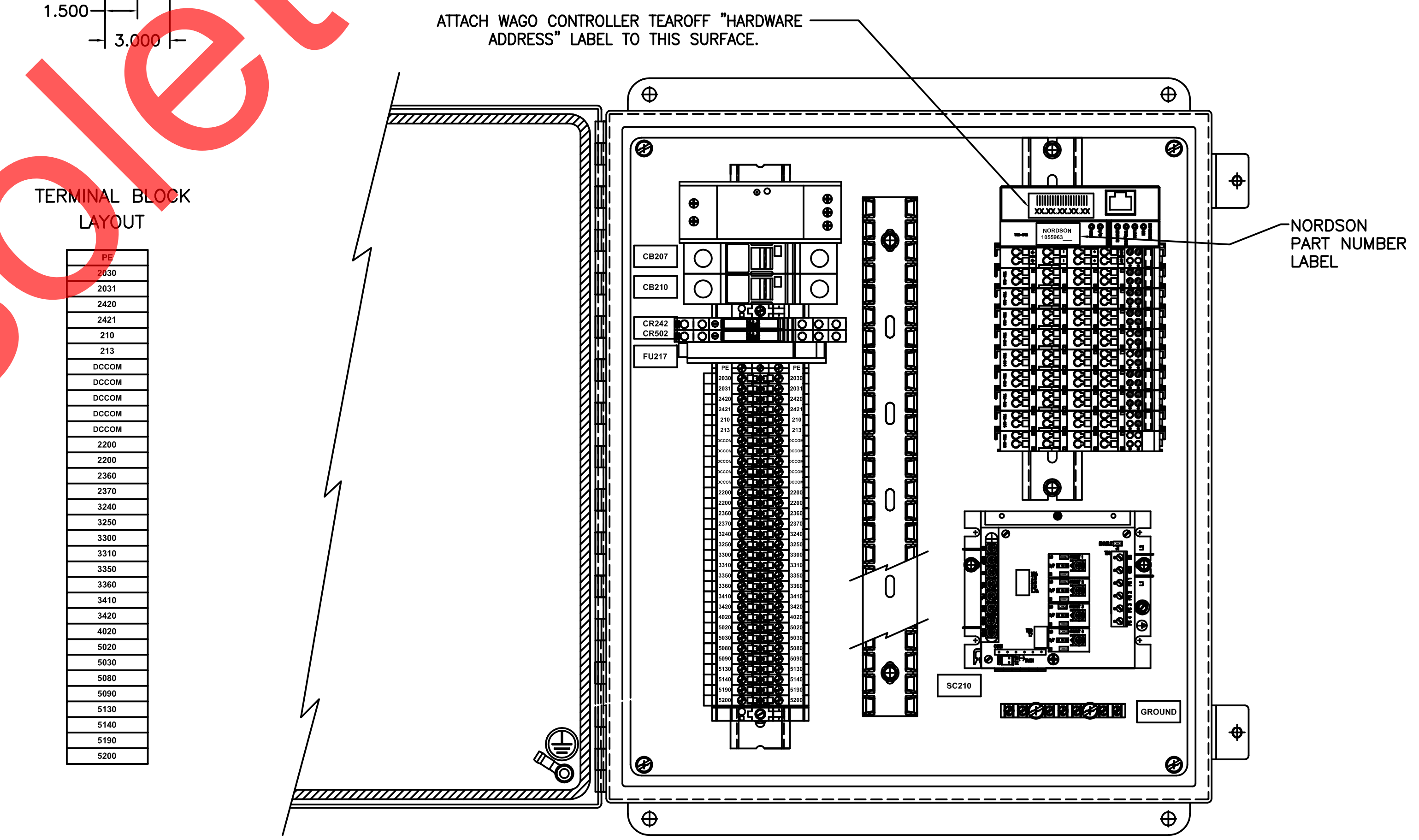
ITEM	DESIGNATION	MFG PART NO.	DESCRIPTION	QTY	MFG	NORDSON PART NO.	
0			REF DWG,ASSY PANEL,GUN POSITIONER	0		1078407	
1		A-1614CH	ENCLOSURE, CONT HINGE,16x14x6	1	HOFFMAN	1078420	
2		CUSTOM	LABEL SET, GUN POSITIONER	1	-----	1078684	
3		8002-ISO	TAG,WARNING,ELECT SHOCK HAZARD,1.00x.88	1	SAFETY LABEL SOLUTIONS	1075692	
4			LABEL,IDENTIFICATION,1.00 X 2.00	1		1005678	
5		0514500000	TBACCY,DIN,RAIL,SLOT,35x2M-LG	.49M	WEIDMULLER,INC	239214	
6			SCR,HEX,SELF TAP,10-32X .500,Z	6		981137	
7		A-16P14	ENCLACCY,PANEL,14.75x12.88,14GA	1	HOFFMAN	1078422	
8		F1x3LG6	WIREDUCT, 1 X 3,PVC,GRAY,SLOTTED	1FT	PANDUIT	1090158	
9	GROUND	PK7GTA	GROUND TERMINAL	1	SQUARE D	1046405	
10	SC210	KBMG-212D WITH 8833	CONTROLLER,DC DRIVE W/ SP BD,GUN PSNR	1	KB ELECTRONICS	1046921	
11			SCR,HEX,SELF TAP,SLTD,8-32X.50,TYPE T,Z	4		1083981	
12	CB207	1DU10	CIRCUIT BREAKER,1 POLE,10 AMP,10-20 xl n	1	ALTECH	1078518	
13	CB210	1CU8	CIRCUIT BREAKER,1 POLE,8 AMP	1	ALTECH	1092954	
14		PS5R-SD24	POWER SUPPLY,60W	1	IDEC	1092955	
15			MODULE GROUP,I/O,WAGO	1	WAGO	1078669	*
16		C1LG6	COVER,1	1FT	PANDUIT	1046394	
17	FU217	1492-H6	FUSE HOLDER,DIN RAIL,1/4 X 1-1/4" FUSES	1	ALLEN BRADLEY	341366	
18	FU217	MDL-1-R	FUSE,2AMP,SLOBLO,250V,3AG,313	1	BUSSMANN	939016	
19	FU217	1492-N37	END,PLATE,AB FUSE	1	ALLEN BRADLEY	341367	
20		1492-J4	TERMINAL BLK,GRAY,IEC,22-10 AWG,JG4	30	ALLEN BRADLEY	1075583	
21		1492-EAJ35	ANCHOR,END	2	ALLEN BRADLEY	306318	
22	CR242	CR242	RELAY,TERM BLK,SPDT,110/125V AC/DC	1	ALLEN BRADLEY	1071600	
23		1492-JG4	TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4	1	ALLEN BRADLEY	1075665	
24		1492-J4-Y	TERMINAL BLK,YELLOW,IEC,22-10 AWG,JG4	2	ALLEN BRADLEY	1075694	
25		1492-EBJ3	BARRIER,TBACCY,END,DIN,GRAY,J SERIES	2	ALLEN BRADLEY	1075584	
26			WIRE,105C,18GA,BLUE,600V	31.5		335174	
27			STRNDWIRE,14 AWG,YEL,600V,105C	3		1079956	
28			WIRE,VINYL,14AWG,GREEN W/YELLOW	4.75		931191	
29			WIRE,VINYL,14AWG,RED	7.5		931296	
30			WIRE,VINYL,14AWG,WHITE	3		931268	
31			WIRE,VINYL,18AWG,RED	9		931170	
32			STRAP,CABLE,.875DIA	7		939110	
33		UTPCH2	CABLE,RJ45 TO RJ45,2FT	1	PANDUIT	282960	
34		MX5-F02	CONNECTOR,ETHERNET,RJ245-TO IDC,CAT5	1	SIEMON	1058224	
35		MX-SM1-02	BOX,SURFACE MOUNT,ETHERNET	1	SIEMON	1078555	
36			TERMINAL,RINGTONG,INS,16-14,10	1		933054	
37			NUT,HEX,MACH,#10-32,BRASS	2		984129	
38			WASHER,LK,E,SPT,#10,STL,NI	1		983120	
39			WASHER,FLT,E,.203X.406X.040,BR	1		983021	☆
40		1492-CJLJ6-10	JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN	1	ALLEN BRADLEY	1078531	
41			QUIKCONN,INS,FEM,.250"X.032",14-16AWG	4		1049966	
42			TERMINAL,FLG.SPADE,INS,16-14,6	1		933184	
43			LABEL SET, PANEL WIRING FOR 1055889	1		1079873	
44			WASHER,LK,E,INT,#10,STL,ZN	4		983124	
45			LABEL,BLANK,3.00X5.00	1		603348	
46			MOUNT,CABLE STRAP	1		242837	
47			CONTROLLER,PROGRAMMED,GUN POS'R iCONTROL	1		1055963	
48			CAP,FLUSH,7/8 DIA	3		900809	
49	CR502	700-HLS1Z24	RELAY, SOLID STATE	1	ALLEN BRADLEY	1092942	

☆ CUT JUMPER AS REQUIRED FOR REQUIRED LENGTHS.

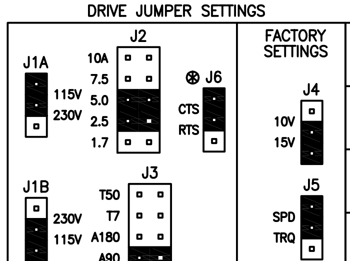
*ITEM 15 I/O MODULE GROUP COMPONENT BREAKDOWN.

MFG PART NO.	DESCRIPTION	QTY	MFG
750-408	4-CHANNEL DIGITAL INPUT MODULE DC 24V	4	WAGO
750-514	2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V	2	WAGO
750-516	4-CHANNEL DIGITAL OUTPUT MODULE DC 24V	1	WAGO
750-634	INCREMENTAL ENCODER INTERFACE	1	WAGO
750-600	END MODULE	1	WAGO





DRIVE JUMPER SETTINGS



JUMPER POSITIONS

J1	J1A	J1B	J2	J3	J4	J5	J6
NO	115V	115V	5.0	A90	15V	SPD	CTS ⊗

MULTI-SPEED BOARD JUMPER SETTINGS

PRESET 1	LO - NO R/F - F HI - YES	FORWARD
PRESET 2	LO - NO R/F - R HI - YES	REVERSE
PRESET 3	LO - YES R/F - R HI - NO	BLOWOFF
PRESET 4	N/A	

⊗ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

ADJUST FOR DESIRED FORWARD SPEED (PRE 1)
ADJUST FOR DESIRED REVERSE SPEED (PRE 2)

MULTI SPEED BOARD POT	%CLOCKWISE
PRE 1	50-100%
PRE 2	50-100%
PRE 3	50%
PRE 4	N/A

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

MAINBOARD POT	% C.W.
DB	100%
RESP	50%
IR	25%
FCL	75%
RCL	75%
MAX	100%
FACC	0%
RACC	0%

NOTES

1. ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.
2. THIS PANEL IS APPROPRIATE FOR TOP DOWN VERTICAL POSITIONERS & SPECIAL 1/2HP IN/OUT POSITIONERS.
3. THIS PANEL SUPPORTS (1) VERTICAL POSITIONER.

ITEM	ICT	PART NO.	DESCRIPTION	QTY.

NEXT ASSEMBLY
FIRST PRODUCT USED ON: IN-OUT POSITIONER
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED
X.XX +/- .030 X.XXX +/- .010
MACHINED SURFACES 125/AA
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.
THREAD LENGTH DIMS. ARE FULL THREAD
THIRD ANGLE PROJECTION

D SIZE

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DRAWN BY RF — DATE 03NOV08
CHECKED BY GS — APPROVED BY GS
REL NO PE601307

CONTROL PANEL, TOP DN POS, 1/2HP,ICONTROL

CONTROL NUMBER 1092923 — REV. A01

SCALE: FULL — PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING — PAGE 1 / 6

USERS 120V
1PH,60 Hz,
10 AMP SUPPLY

L
N
2030
2031

2030 CB207 10A ("D" CURVE) 2070

W/MULTI-SPEED BOARD
KBMG-212D/8831
90VDC,1/4HP, 4A

*WIRE OFF OF M1 AND M2 TO BE 16 GAUGE BLACK

SC210

CB210 4A M1
210 (BLK)
A 5.0A
(WHT) (GRN)
213
M2

DB
RESP
IR
RCL
FCL
MAX
FACC
RACC

J6
J1
L1
L2
J2
J5
J3
J4

LO — PRESET 1 R/F — HI —
LO — PRESET 2 R/F — HI —
LO — PRESET 3 R/F — HI —
LO — PRESET 4 R/F — HI —

TB1

EN	4240 BLACK	424
COM	4260 RED	426
PS1	4250 WHITE	425
PS2	4350 GREEN	435
PS3	4360 BROWN	436
PS4		

ENABLE
COMMON
FORWARD/EXTEND
REVERSE/RETRACT
BLOWOFF/SLOW RETRACT

J1A 1 2 3 4 5 V
J1B 1 2 3 4 5 V

EN COM TACH +15V SIG -15V

FU217 2A 2117

PWS219
L N
AC INPUT
DC OUTPUT
24VDC POWER SUPPLY
DCCOM
2200

24VDC POWER SUPPLY
60 W, 2.5 A

2200 DCCOM
229 229

NOTE

1. CHECK MOTOR WIRING.

LEGEND
△- REMOTELY LOCATED DEVICE
⊘- GUNMOVER PANEL TERMINAL

ENCODER RESOLUTION AND WIRING

BASE TYPE	PULSE/INCH ("A")	WIRING ("B")
RACK & PINION 1018682	262	2360 = GREEN 2370 = ORANGE
BELT-DRIVE 1056206	224	2360 = ORANGE 2370 = GREEN
TOP DOWN VERTICAL POSITIONER	143	2360 = ORANGE 2370 = GREEN

ENC235
ENC
RED
BLACK
"B"
"B"
GRN/BLK
2200
DCCOM
2360
2370
524
526

MACHINE #1 ENCODER
("A") PULSE/INCH

B
2390
2200
DCCOM

ELECTRO-MECHANICAL BRAKE

2420 YEL CR242 (A1) (A2) YEL 2421
YEL
YEL
120VAC FR/MAIN SYSTEM PANEL EXHAUSTER RUN

EXHAUSTER RUN INTERLOCK 402

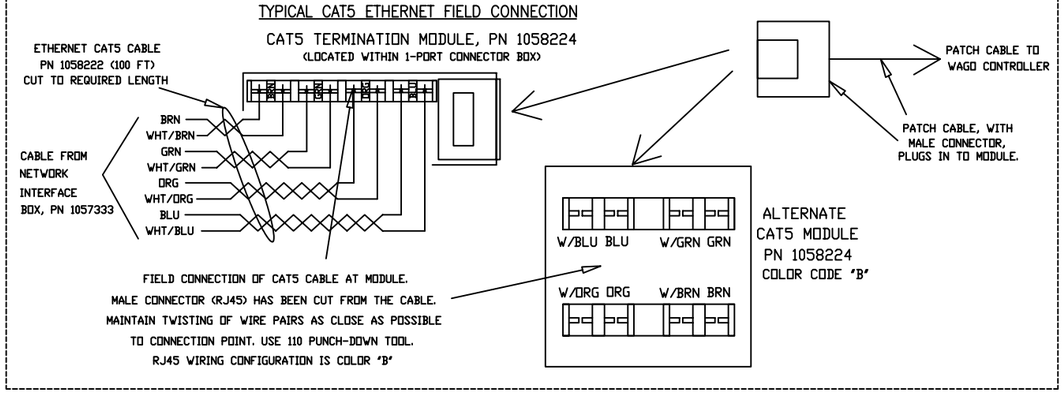
221 221
2200 DCCOM

2200 DCCOM
300 300

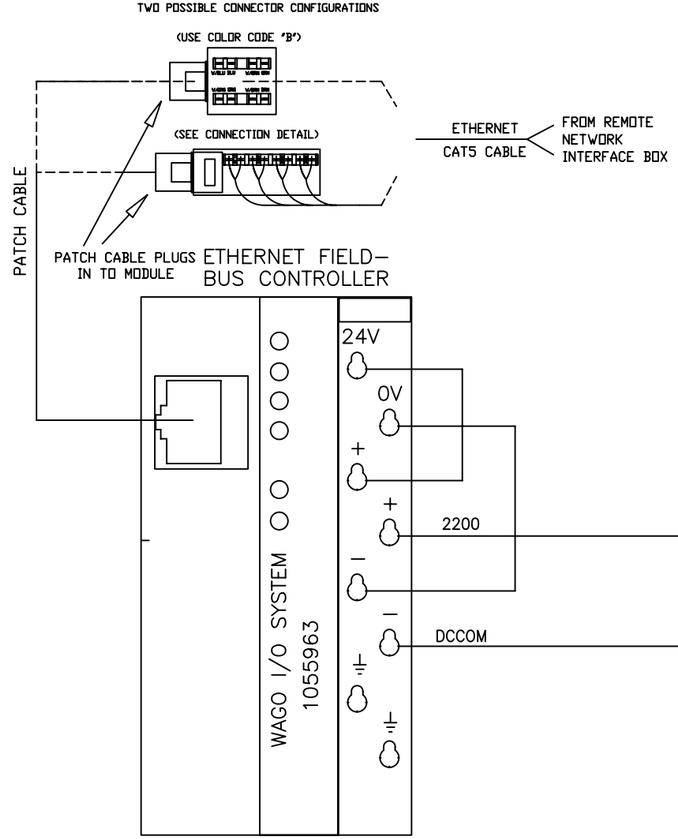
NEXT ASSEMBLY	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
FIRST PRODUCT USED ON IN-OUT POSITIONER	X.XX +/- .030 X.XXX +/- .010	DRAWN BY RF	DATE 03NOV08
	MACHINED SURFACES 125 AA	CHECKED BY GS	APPROVED BY GS
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601307	CONTROL PANEL, TOP DN POS, 1/2HP,ICONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1092923 REV. A01
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 2 / 6

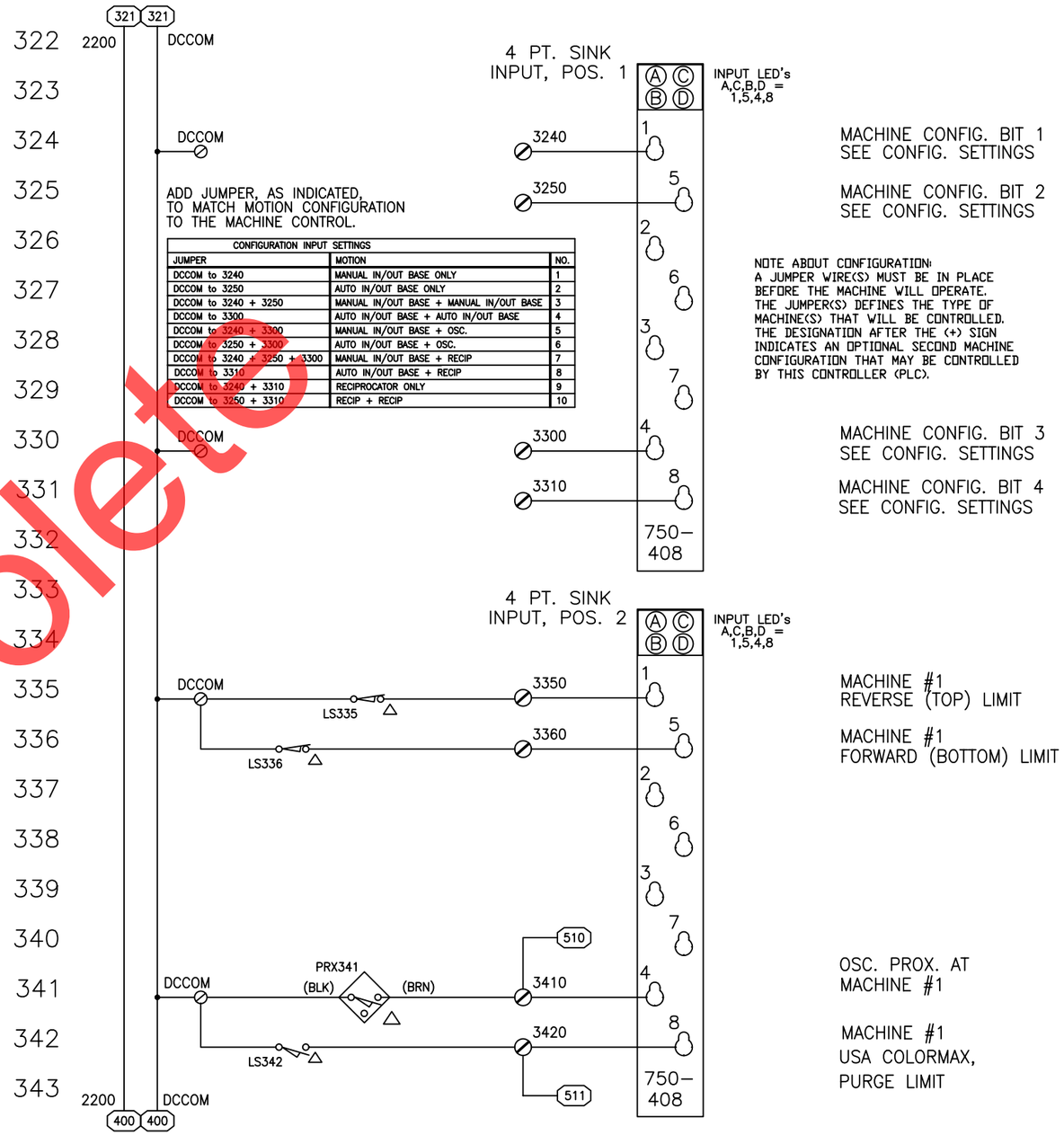
TYPICAL CAT5 ETHERNET FIELD CONNECTION

CAT5 TERMINATION MODULE, PN 1058224
(LOCATED WITHIN 1-PORT CONNECTOR BOX)



CAT5 TERMINATION MODULE
TWO POSSIBLE CONNECTOR CONFIGURATIONS





LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION, POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY RF	DATE 03NOV08
NEXT ASSEMBLY	MACHINED SURFACES 125 µM	CHECKED BY GS	APPROVED BY GS
FIRST PRODUCT USED ON: IN-OUT POSITIONER	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601307	CONTROL PANEL, TOP DN POS, 1/2HP,ICONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1092923 REV. A01
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING — PAGE 3 / 6

IF COLORMAX SYSTEM WITH FEED CENTER, SEE SYSTEM ELECTRICAL DRAWINGS FOR CONNECTION. ALSO SEE SHEET 5

343 343

2200 DCCOM

4 PT. SINK INPUT, POS. 3

INPUT LED's A,C,B,D = 1,5,4,8

CR242 (11) (14)

4020

SIGNAL FROM BOOTH CONTROL BOOTH FAN RUN

RUN TEST AT MACHINE #1

RUN TEST AT MACHINE #2

MACHINE TEST FWD INPUT

MACHINE TEST REV INPUT

750–408

MACHINE TEST INSTRUCTIONS

TO ACTIVATE TESTING, CONNECT APPROPRIATE INPUT(S) TO "DCCOM".
IF TESTING MACHINE 1, CONNECT" RUN TEST AT MACHINE #1 INPUT TO "DCCOM".
IF TESTING MACHINE 2, CONNECT "RUN TEST AT MACHINE #2" INPUT TO "DCCOM".
MANUAL TESTING:
SELECT MACHINE 1 OR 2 INPUT.
RUN FORWARD BY CONNECTING FWD INPUT.
MACHINE SHOULD STOP AT FORWARD LIMIT.
RUN REVERSE BY CONNECTING REV INPUT.
MACHINE SHOULD STOP AT REVERSE LIMIT.
TO RUN REVERSE SLOW SPEED, TOGGLE INPUT 2 BEFORE CONNECTING INPUT 2. MACHINE SHOULD STOP AT REVERSE LIMIT.
AUTO TESTING:
FIRST RUN MANUAL TEST TO THE FORWARD, AND THEN TO THE REVERSE LIMITS. (THIS ACTION SETS AUTO TESTING LIMITS BASED ON ENCODER SIGNAL PROCESSING).
SELECT MACHINE 1 OR/AND MACHINE 2 INPUT.
TO RUN AN AUTO TEST CONNECT BOTH FWD AND REV INPUTS TO "DCCOM".
THE MACHINE(S) WILL RUN FORWARD AND REVERSE BETWEEN TWO POINTS, EACH POINT BEING 1/4 OF TOTAL DISTANCE FROM EACH LIMIT. REVERSE SPEED WILL ALTERNATE BETWEEN NORMAL AND BLOWOFF SPEED.
IF RECIPROCATOR, SPEED WILL BE 3/4 MAX.

DCCOM

DCCOM

2200 DCCOM

500 500

2 PT. RELAY OUTPUT, POS. 1

OUTPUT LED's A,C,B,D = 1,5,4,8

4240 → 211

4250 → 212

4260 → 212

4260

750–514

MACHINE #1 ENABLE

MACHINE #1 FORWARD

MACHINE #1 COMMON

2 PT. RELAY OUTPUT, POS. 2

OUTPUT LED's A,C,B,D = 1,5,4,8

4350 → 213

4360 → 213

4260

750–514

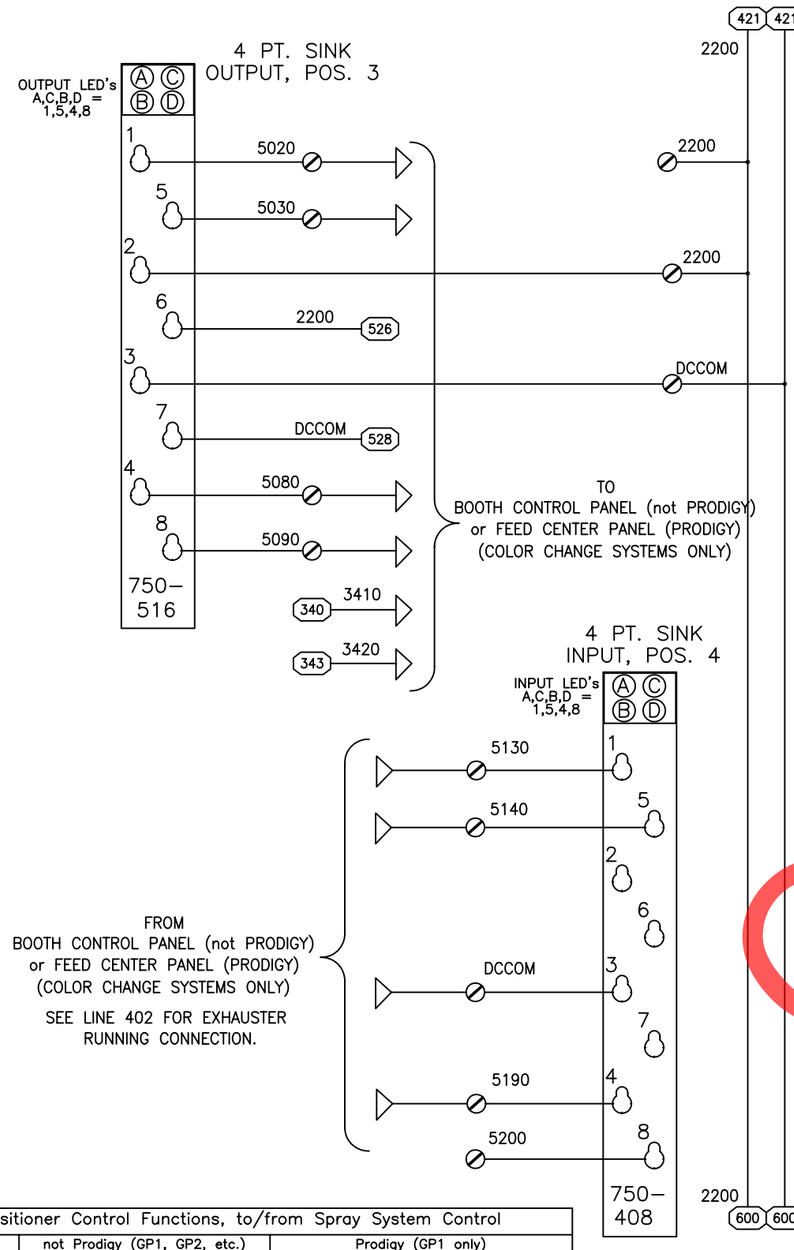
MACHINE #1 REVERSE

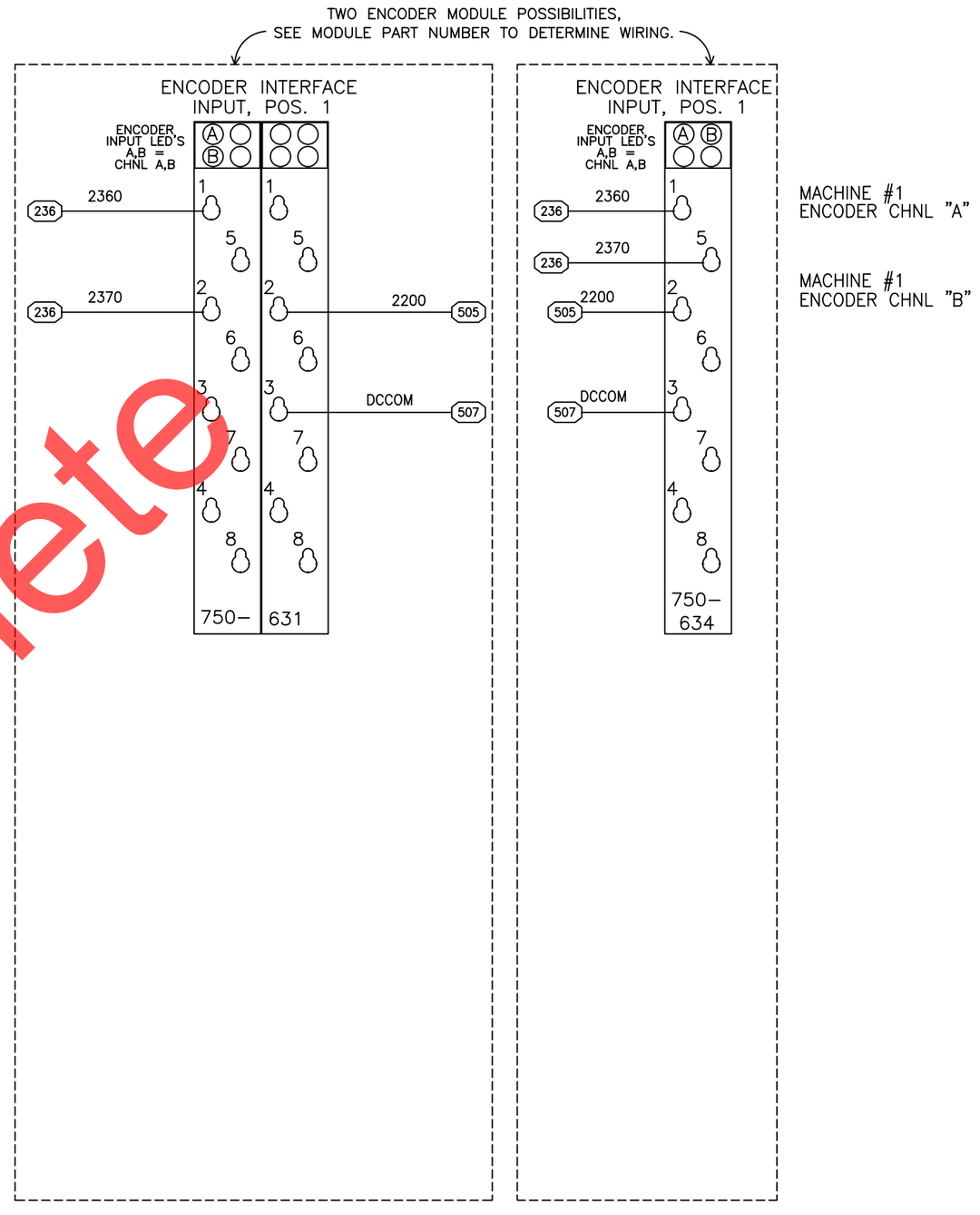
MACHINE #1 SLOW REVERSE

MACHINE #1 COMMON

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

NEXT ASSEMBLY	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
FIRST PRODUCT USED ON: IN–OUT POSITIONER	X.XX +/– .030 X.XXX +/– .010	DRAWN BY: RF	DATE: 03NOV08
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	MACHINED SURFACES 125 AA	CHECKED BY: GS	APPROVED BY: GS
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO: PE601307	CONTROL PANEL, TOP DN POS, 1/2HP,ICONTROL
	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER: 1092923	REV. A01
	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
		PAGE 4 / 6	





Gun Positioner Control Functions, to/from Spray System Control			
Terminal	I/O	not Prodigy (GP1, GP2, etc.)	Prodigy (GP1 only)
5020	OUTPUT	Mechanical Brake Control	* Lockout (if Oscillator, Off = Lock)
5030	OUTPUT	External Blowoff Air Control	External Blowoff Air Control (all GP's)
5080	OUTPUT	Ready for Color Change	Color Change Start From iControl
5090	OUTPUT	External Blowoff Cycle Complete	Purge & Blowoff Cycle Complete
5130	INPUT	Disable (Off = Disable)	Spare
5140	INPUT	Run External Blowoff Cycle	Run Color Change Cycle
5190	INPUT	Internal Purge Cycle Complete	Spare
5200	INPUT	Spare	Spare

* "Mechanical Brake Control" function active if vertical gun positioner. If Oscillator, then brake function is disabled, positioner is not vertical.

A11

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

NEXT ASSEMBLY	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	SIZE D	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
FIRST PRODUCT USED ON IN–OUT POSITIONER	X.XX +/– .030 X.XXX +/– .010	DRAWN BY RF	DATE 03NOV08
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	MACHINED SURFACES 125 µm	CHECKED BY GS	APPROVED BY GS
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601307	CONTROL PANEL, TOP DN POS, 1/2HP,ICONTROL
	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER 1092923	REV. A01
	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
			PAGE 5 / 6

LABEL,IDENTIFICATION,1.00 X 2.00

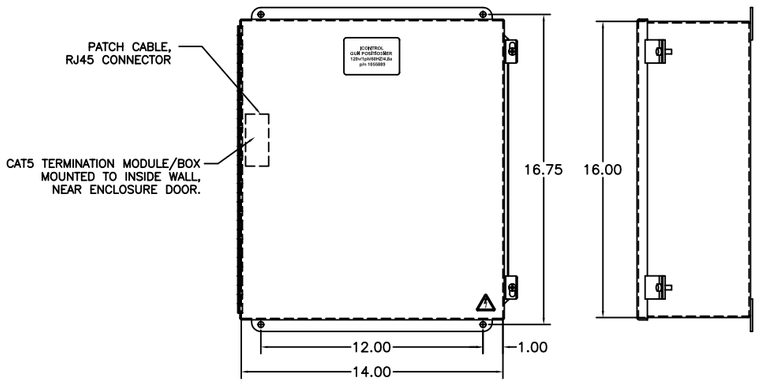
1092924

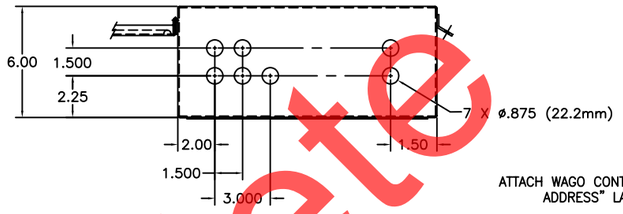
ITEM	DESIGNATION	MFG PART NO.	DESCRIPTION	QTY	MFG	NORDSON PART NO.
0			REF DWG,ASSY PANEL,GUN POSITIONER	0		1078407
1		A-1614CH	ENCLOSURE, CONT HINGE,16x14x6	1	HOFFMAN	1078420
2		CUSTOM	LABEL SET, GUN POSITIONER	1	-----	1078684
3		8002-ISO	TAG,WARNING,ELECT SHOCK HAZARD,1.00x.88	1	SAFETY LABEL SOLUTIONS	1075692
4			LABEL,IDENTIFICATION,1.00 X 2.00	1		1005678
5		0514500000	TBACCY,DIN,RAIL,SLOT,35x2M-LG	.49M	WEIDMULLER,INC	239214
6			SCR,HEX,SELF TAP,10-32X .500,Z	6		981137
7		A-16P14	ENCLACCY,PANEL,14.75x12.88,14GA	1	HOFFMAN	1078422
8		F1x3LG6	WIREDUCT, 1 X 3,PVC,GRAY,SLOTTED	1FT	PANDUIT	1090158
9	GROUND	PK7GTA	GROUND TERMINAL	1	SQUARE D	1046405
10	SC210	KBMG-212D WITH 8833	CONTROLLER,DC DRIVE W/ SP BD,GUN PSNR	1	KB ELECTRONICS	1046921
11			SCR,HEX,SELF TAP,SLTD,8-32X.50,TYPE T,Z	4		1083981
12	CB207	1DU10	CIRCUIT BREAKER,1 POLE,10 AMP,10-20 xl n	1	ALTECH	1078518
13	CB210	1CU8	CIRCUIT BREAKER,1 POLE,8 AMP	1	ALTECH	1092954
14		PS5R-SD24	POWER SUPPLY,60W	1	IDEC	1092955
15			MODULE GROUP,I/O,WAGO	1	WAGO	1078669 *
16		C1LG6	COVER,1	1FT	PANDUIT	1046394
17	FU217	1492-H6	FUSE HOLDER,DIN RAIL,1/4 X 1-1/4" FUSES	1	ALLEN BRADLEY	341366
18	FU217	MDL-1-R	FUSE,2AMP,SLOBLO,250V,3AG,313	1	BUSSMANN	939016
19	FU217	1492-N37	END,PLATE,AB FUSE	1	ALLEN BRADLEY	341367
20		1492-J4	TERMINAL BLK,GRAY,IEC,22-10 AWG,JG4	30	ALLEN BRADLEY	1075583
21		1492-EAJ35	ANCHOR,END	2	ALLEN BRADLEY	306318
22	CR242	CR242	RELAY,TERM BLK,SPDT,110/125V AC/DC	1	ALLEN BRADLEY	1071600
23		1492-JG4	TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4	1	ALLEN BRADLEY	1075665
24		1492-J4-Y	TERMINAL BLK,YELLOW,IEC,22-10 AWG,JG4	2	ALLEN BRADLEY	1075694
25		1492-EBJ3	BARRIER,TBACCY,END,DIN,GRAY,J SERIES	2	ALLEN BRADLEY	1075584
26			WIRE,105C,18GA,BLUE,600V	31.5		335174
27			STRNDWIRE,14 AWG,YEL,600V,105C	3		1079956
28			WIRE,VINYL,14AWG,GREEN W/YELLOW	4.75		931191
29			WIRE,VINYL,14AWG,RED	7.5		931296
30			WIRE,VINYL,14AWG,WHITE	3		931268
31			WIRE,VINYL,18AWG,RED	9		931170
32			STRAP,CABLE,.875DIA	7		939110
33		UTPCH2	CABLE,RJ45 TO RJ45,2FT	1	PANDUIT	282960
34		MX5-F02	CONNECTOR,ETHERNET,RJ245-TO IDC,CAT5	1	SIEMON	1058224
35		MX-SM1-02	BOX,SURFACE MOUNT,ETHERNET	1	SIEMON	1078555
36			TERMINAL,RINGTONG,INS,16-14,10	1		933054
37			NUT,HEX,MACH,#10-32,BRASS	2		984129
38			WASHER,LK,E,SPT,#10,STL,NI	1		983120
39			WASHER,FLT,E,.203X.406X.040,BR	1		983021 ☆
40		1492-CJLJ6-10	JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN	1	ALLEN BRADLEY	1078531
41			QUIKCONN,INS,FEM,.250"X.032",14-16AWG	4		1049966
42			TERMINAL,FLG.SPADE,INS,16-14,6	1		933184
43			LABEL SET, PANEL WIRING FOR 1055889	1		1079873
44			WASHER,LK,E,INT,#10,STL,ZN	4		983124
45			LABEL,BLANK,3.00X5.00	1		603348
46			MOUNT,CABLE STRAP	1		242837
47			CONTROLLER,PROGRAMMED,GUN POS'R iCONTROL	1		1055963
48			CAP,FLUSH,7/8 DIA	3		900809
49	CR502	700-HLS1Z24	RELAY, SOLID STATE	1	ALLEN BRADLEY	1092942

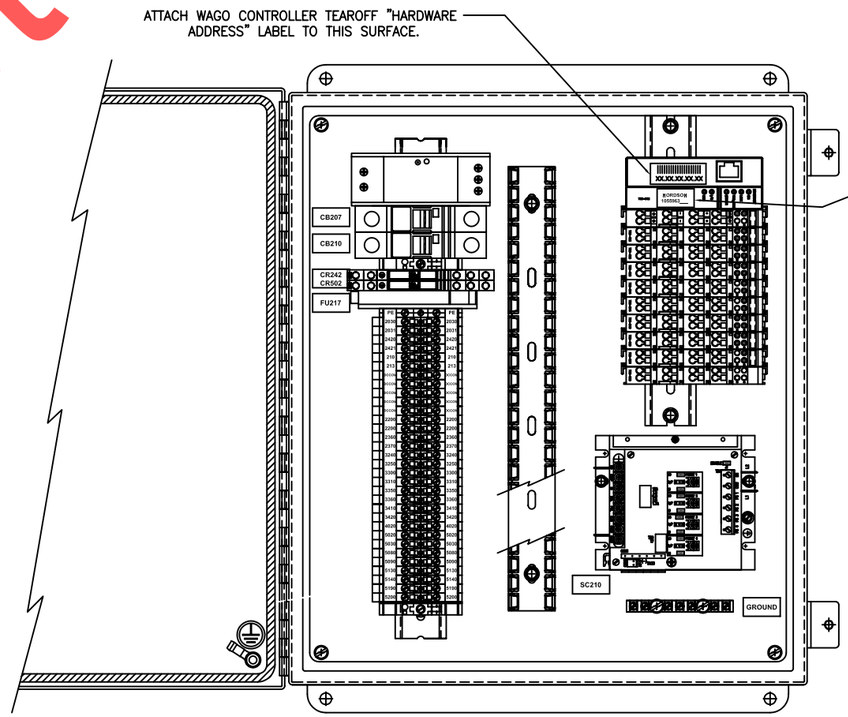
☆ CUT JUMPER AS REQUIRED FOR REQUIRED LENGTHS.

*ITEM 15 I/O MODULE GROUP COMPONENT BREAKDOWN.

MFG PART NO.	DESCRIPTION	QTY	MFG
750-408	4-CHANNEL DIGITAL INPUT MODULE DC 24V	4	WAGO
750-514	2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V	2	WAGO
750-516	4-CHANNEL DIGITAL OUTPUT MODULE DC 24V	1	WAGO
750-634	INCREMENTAL ENCODER INTERFACE	1	WAGO
750-600	END MODULE	1	WAGO







TERMINAL BLOCK LAYOUT

P#
2030
2031
2420
2421
210
213
DCCOM
DCCOM
DCCOM
DCCOM
DCCOM
2200
2200
2360
2370
3240
3250
3300
3310
3350
3360
3410
3420
4020
5020
5030
5080
5090
5130
5140
5190
5200

DRIVE JUMPER SETTINGS

J2: J1A 10A / 7.5 / 115V 5.0 / 230V 2.5 / 1.7 — ⊛ J6: CTS, RTS

J3: J1B T50 / 230V T7 / 115V A180 / A90

FACTORY SETTINGS: J4 10V / 15V; J5 SPD / TRQ

JUMPER POSITIONS							
J1	J1A	J1B	J2	J3	J4	J5	J6
NO	115V	115V	5.0	A90	15V	SPD	CTS

⊛

MULTI-SPEED BOARD JUMPER SETTINGS

PRESET 1	LO – NO R/F – F HI – YES	FORWARD
PRESET 2	LO – NO R/F – R HI – YES	REVERSE
PRESET 3	LO – YES R/F – R HI – NO	BLOWOFF
PRESET 4	N/A	

⊛ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

ADJUST FOR DESIRED FORWARD SPEED

ADJUST FOR DESIRED REVERSE SPEED

FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

MULTI SPEED BOARD POT	%CLOCKWISE
PRE 1	50-100%
PRE 2	50-100%
PRE 3	50%
PRE 4	N/A

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

MAINBOARD POT	% C.W.
DB	100%
RESP	50%
IR	25%
FCL	75%
RCL	75%
MAX	100%
FACC	0%
RACC	0%

NOTES

1. ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.
2. THIS PANEL IS APPROPRIATE FOR BOTTOM UP VERTICAL POSITIONERS WITH 1/2HP MOTOR.
3. THIS PANEL SUPPORTS (1) VERTICAL POSITIONER.

ITEM	ICT	PART NO.	DESCRIPTION	QTY.

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED

X.XX +/- .030 X.XXX +/- .010

NEXT ASSEMBLY

FIRST PRODUCT USED ON IN-OUT POSITIONER

INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.

PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

MACHINED SURFACES 125 AA

BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.

THREAD LENGTH DIMS. ARE FULL THREAD

THIRD ANGLE PROJECTION

SIZE D

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DRAWN BY RF DATE 03NOV08

CHECKED BY GS APPROVED BY GS

REL NO PE601307

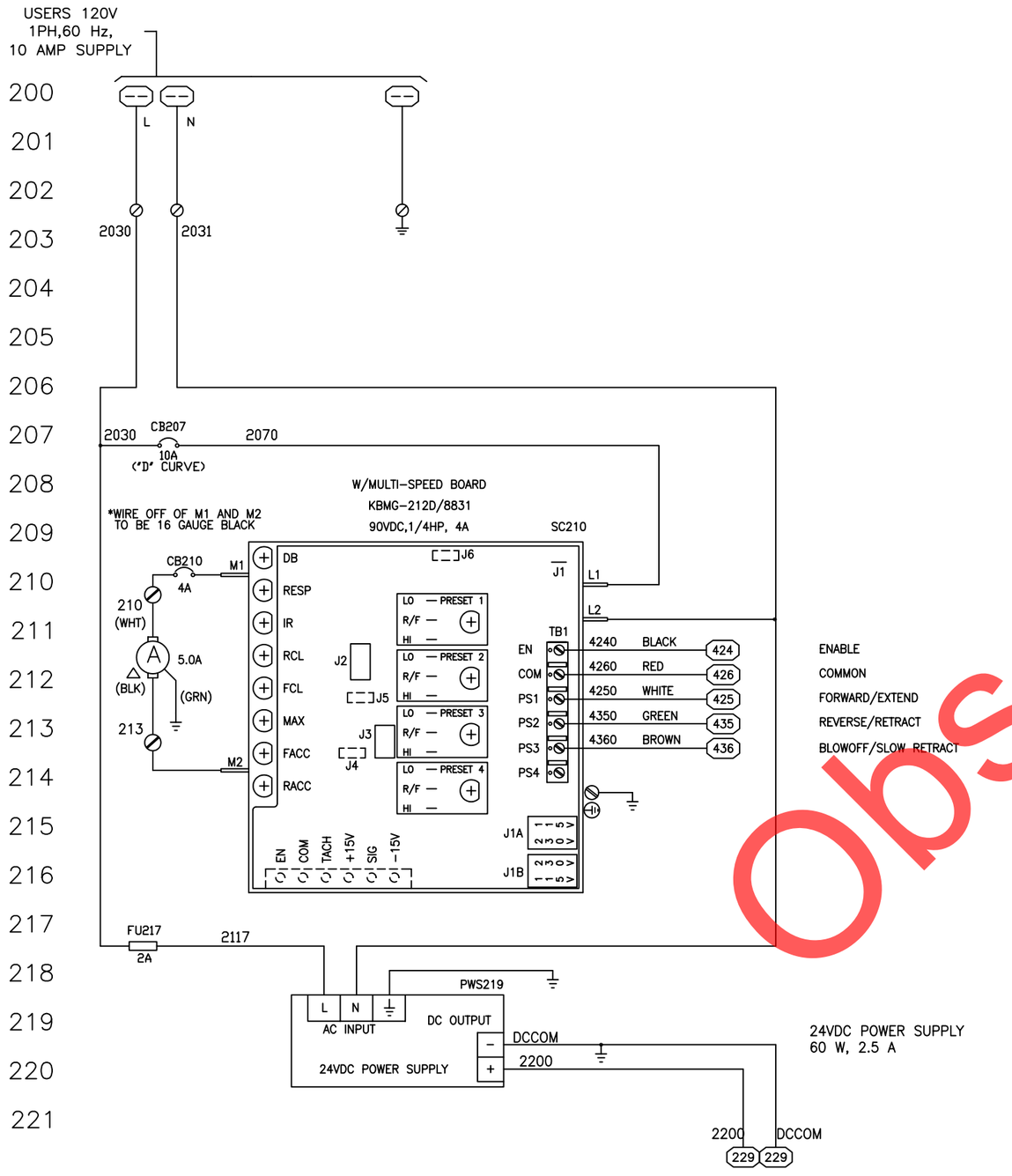
CONTROL PANEL, BOT UP POS, 1/2HP,ICONTROL

CONTROL NUMBER 1092924 REV. A01

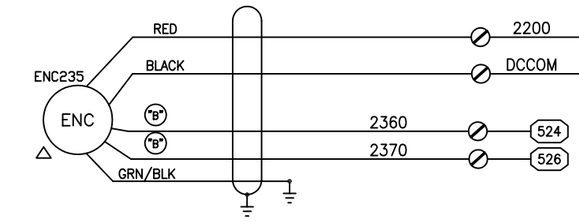
SCALE: FULL

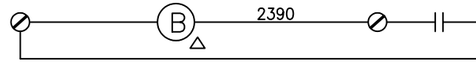
PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING

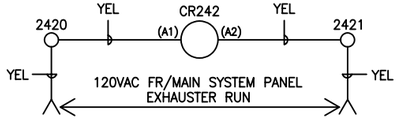
PAGE 1 / 6

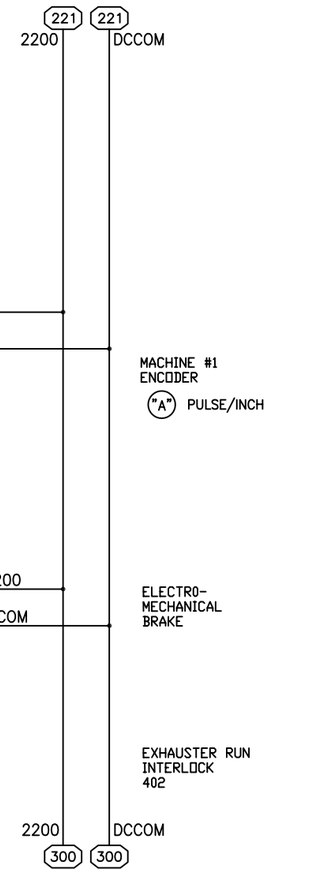


ENCODER RESOLUTION AND WIRING		
BASE TYPE	PULSE/INCH ("A")	WIRING ("B")
RACK & PINION 1018682	262	2360 = GREEN 2370 = ORANGE
BELT-DRIVE 1056206	224	2360 = ORANGE 2370 = GREEN
TOP DOWN VERTICAL POSITIONER	143	2360 = ORANGE 2370 = GREEN









NOTE

1. CHECK MOTOR WIRING.

LEGEND
△- REMOTELY LOCATED DEVICE
⊘- GUNMOVER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY RF	DATE 03NOV08
NEXT ASSEMBLY	MACHINED SURFACES 125 µM	CHECKED BY GS	APPROVED BY GS
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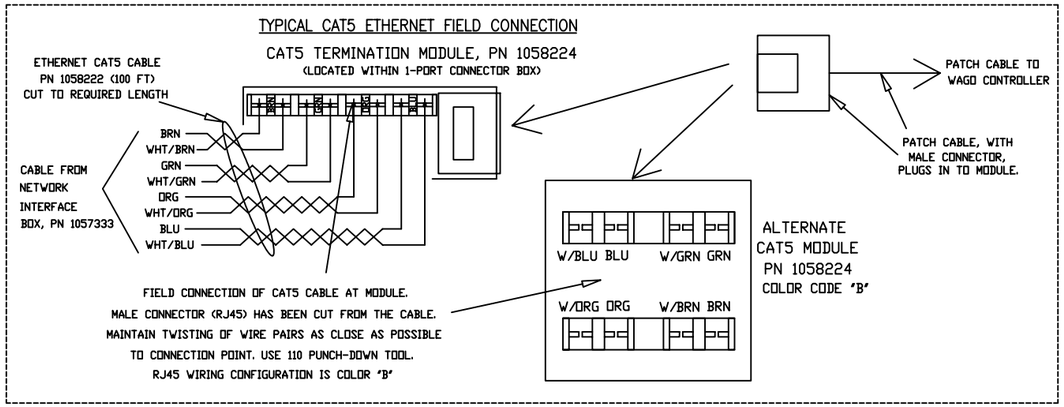
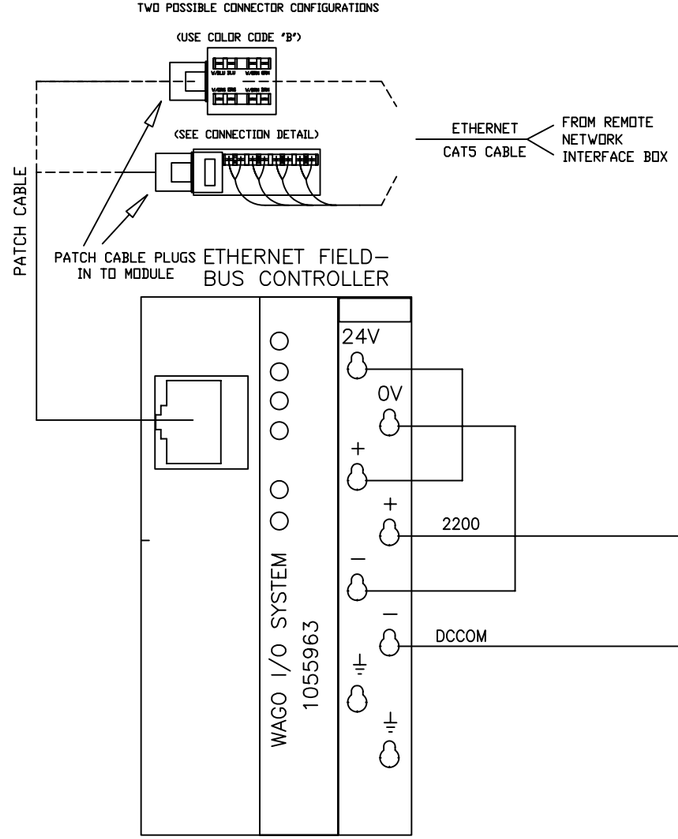
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1092924 REV. A01
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 2 / 6

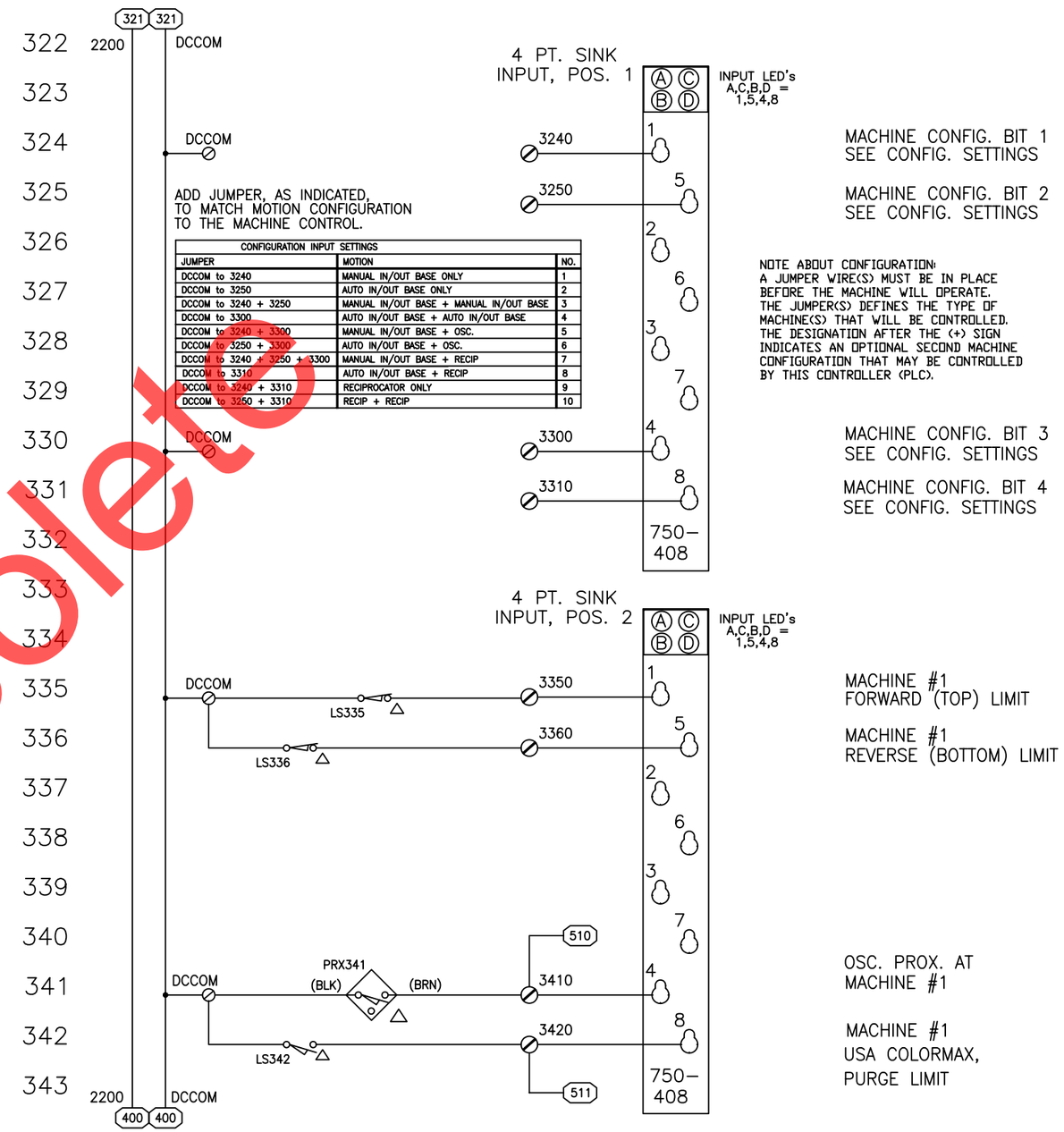
TYPICAL CAT5 ETHERNET FIELD CONNECTION



CAT5 TERMINATION MODULE

TWO POSSIBLE CONNECTOR CONFIGURATIONS





CONFIGURATION INPUT SETTINGS		
JUMPER	MOTION	NO.
DCCOM to 3240	MANUAL IN/OUT BASE ONLY	1
DCCOM to 3250	AUTO IN/OUT BASE ONLY	2
DCCOM to 3240 + 3250	MANUAL IN/OUT BASE + MANUAL IN/OUT BASE	3
DCCOM to 3300	AUTO IN/OUT BASE + AUTO IN/OUT BASE	4
DCCOM to 3240 + 3300	MANUAL IN/OUT BASE + OSC.	5
DCCOM to 3250 + 3300	AUTO IN/OUT BASE + OSC.	6
DCCOM to 3240 + 3250 + 3300	MANUAL IN/OUT BASE + RECIP	7
DCCOM to 3310	AUTO IN/OUT BASE + RECIP	8
DCCOM to 3240 + 3310	RECIPROCATOR ONLY	9
DCCOM to 3250 + 3310	RECIP + RECIP	10

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE BEFORE THE MACHINE WILL OPERATE. THE JUMPER(S) DEFINES THE TYPE OF MACHINE(S) THAT WILL BE CONTROLLED. THE DESIGNATION AFTER THE (+) SIGN INDICATES AN OPTIONAL SECOND MACHINE CONFIGURATION THAT MAY BE CONTROLLED BY THIS CONTROLLER (PLC).

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

NEXT ASSEMBLY	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
FIRST PRODUCT USED ON: IN-OUT POSITIONER	X.XX +/- .030 X.XXX +/- .010; MACHINED SURFACES 125 µM; BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	DRAWN BY RF	DATE 03NOV08
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CHECKED BY GS	APPROVED BY GS
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	REL NO PE601307	CONTROL PANEL, BOT UP POS, 1/2HP,ICONTROL
		CONTROL NUMBER	1092924 REV. A01
		SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
			PAGE 3 / 6

IF COLORMAX SYSTEM WITH FEED CENTER, SEE SYSTEM ELECTRICAL DRAWINGS FOR CONNECTION. ALSO SEE SHEET 5

343 343

2200 DCCOM

4 PT. SINK INPUT, POS. 3

INPUT LED's A,C,B,D = 1,5,4,8

CR242 (11) (14)

4020

SIGNAL FROM BOOTH CONTROL BOOTH FAN RUN

RUN TEST AT MACHINE #1

RUN TEST AT MACHINE #2

MACHINE TEST FWD INPUT

MACHINE TEST REV INPUT

750–408

MACHINE TEST INSTRUCTIONS

TO ACTIVATE TESTING, CONNECT APPROPRIATE INPUT(S) TO "DCCOM".
IF TESTING MACHINE 1, CONNECT" RUN TEST AT MACHINE #1 INPUT TO "DCCOM".
IF TESTING MACHINE 2, CONNECT "RUN TEST AT MACHINE #2" INPUT TO "DCCOM".
MANUAL TESTING:
SELECT MACHINE 1 OR 2 INPUT.
RUN FORWARD BY CONNECTING FWD INPUT.
MACHINE SHOULD STOP AT FORWARD LIMIT.
RUN REVERSE BY CONNECTING REV INPUT.
MACHINE SHOULD STOP AT REVERSE LIMIT.
TO RUN REVERSE SLOW SPEED, TOGGLE INPUT 2 BEFORE CONNECTING INPUT 2. MACHINE SHOULD STOP AT REVERSE LIMIT.
AUTO TESTING:
FIRST RUN MANUAL TEST TO THE FORWARD, AND THEN TO THE REVERSE LIMITS. (THIS ACTION SETS AUTO TESTING LIMITS BASED ON ENCODER SIGNAL PROCESSING).
SELECT MACHINE 1 OR/AND MACHINE 2 INPUT.
TO RUN AN AUTO TEST CONNECT BOTH FWD AND REV INPUTS TO "DCCOM".
THE MACHINE(S) WILL RUN FORWARD AND REVERSE BETWEEN TWO POINTS, EACH POINT BEING 1/4 OF TOTAL DISTANCE FROM EACH LIMIT. REVERSE SPEED WILL ALTERNATE BETWEEN NORMAL AND BLOWOFF SPEED.
IF RECIPROCATOR, SPEED WILL BE 3/4 MAX.

DCCOM

DCCOM

2200 DCCOM

500 500

2 PT. RELAY OUTPUT, POS. 1

OUTPUT LED's A,C,B,D = 1,5,4,8

4240 → 211

4250 → 212

4260 → 212

4260

750–514

MACHINE #1 ENABLE

MACHINE #1 FORWARD

MACHINE #1 COMMON

2 PT. RELAY OUTPUT, POS. 2

OUTPUT LED's A,C,B,D = 1,5,4,8

4350 → 213

4360 → 213

4260

750–514

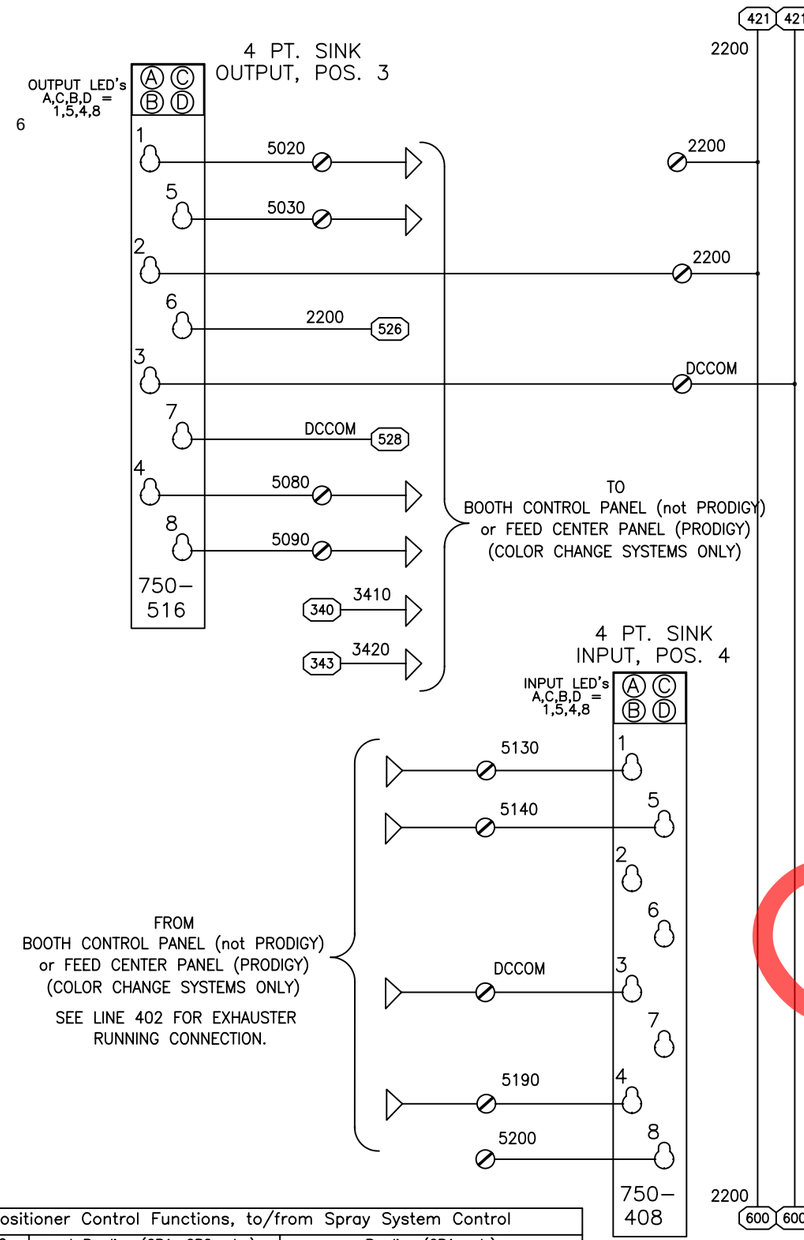
MACHINE #1 REVERSE

MACHINE #1 SLOW REVERSE

MACHINE #1 COMMON

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

NEXT ASSEMBLY	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
FIRST PRODUCT USED ON: IN–OUT POSITIONER	X.XX +/– .030 X.XXX +/– .010	DRAWN BY: RF	DATE: 03NOV08
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	MACHINED SURFACES 125 AA	CHECKED BY: GS	APPROVED BY: GS
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO: PE601307	CONTROL PANEL, BOT UP POS, 1/2HP,ICONTROL
	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER: 1092924	REV. A01
	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
		PAGE 4 / 6	



OUTPUT 5020, SEE CHART BELOW

OUTPUT 5030, SEE CHART BELOW

OUTPUT 5080, SEE CHART BELOW

OUTPUT 5090, SEE CHART BELOW

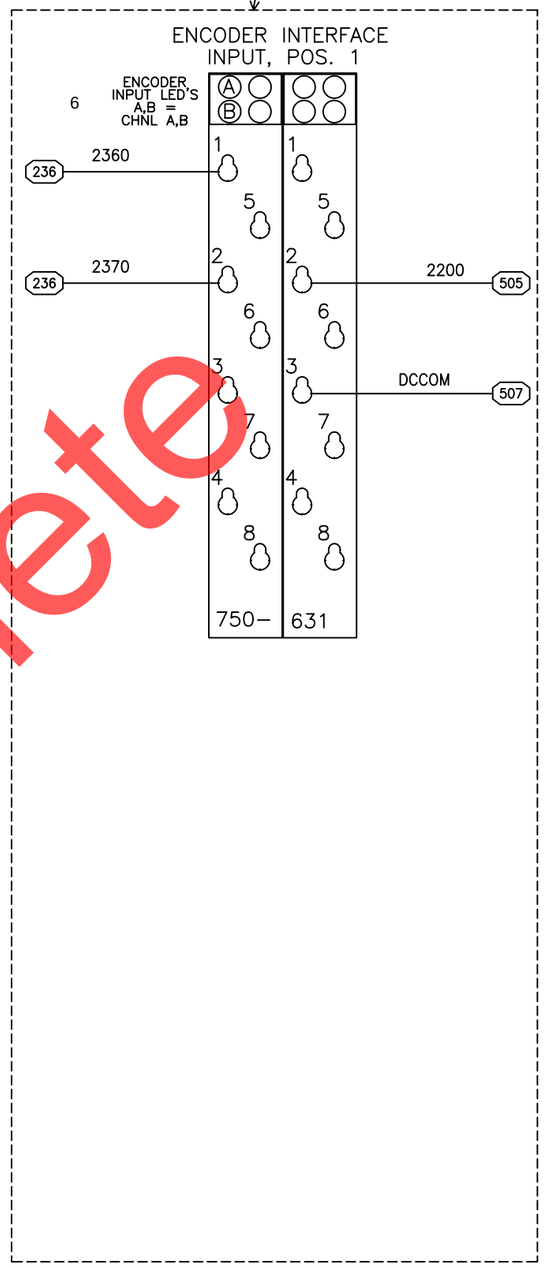
INPUT 5130, SEE CHART BELOW

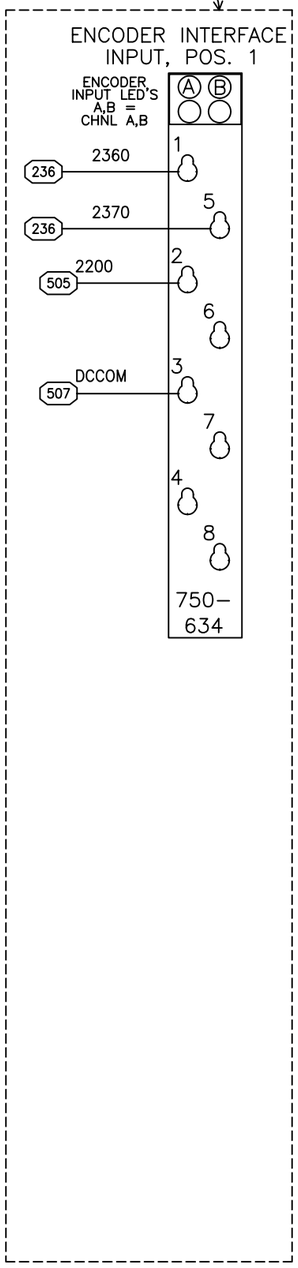
INPUT 5140, SEE CHART BELOW

INPUT 5190, SEE CHART BELOW

SPARE

TWO ENCODER MODULE POSSIBILITIES, SEE MODULE PART NUMBER TO DETERMINE WIRING.





MACHINE #1 ENCODER CHNL "A"

MACHINE #1 ENCODER CHNL "B"

Gun Positioner Control Functions, to/from Spray System Control			
Terminal	I/O	not Prodigy (GP1, GP2, etc.)	Prodigy (GP1 only)
5020	OUTPUT	Mechanical Brake Control	* Lockout (if Oscillator, Off = Lock)
5030	OUTPUT	External Blowoff Air Control	External Blowoff Air Control (all GP's)
5080	OUTPUT	Ready for Color Change	Color Change Start From iControl
5090	OUTPUT	External Blowoff Cycle Complete	Purge & Blowoff Cycle Complete
5130	INPUT	Disable (Off = Disable)	Spare
5140	INPUT	Run External Blowoff Cycle	Run Color Change Cycle
5190	INPUT	Internal Purge Cycle Complete	Spare
5200	INPUT	Spare	Spare

* "Mechanical Brake Control" function active if vertical gun positioner.
If Oscillator, then brake function is disabled, positioner is not vertical.

LEGEND
△- REMOTELY LOCATED DEVICE
⊘- GUNMOVER PANEL TERMINAL

NEXT ASSEMBLY	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
FIRST PRODUCT USED ON: IN-OUT POSITIONER	X.XX +/- .030 X.XXX +/- .010	DRAWN BY RF	DATE 03NOV08
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	MACHINED SURFACES 125 µin / µm	CHECKED BY GS	APPROVED BY GS
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE601307	CONTROL PANEL, BOT UP POS, 1/2HP,ICONTROL
	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1092924 REV. A01
	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 5 / 5

VENDOR'S BILL OF MATERIAL

DESIGNATION	QTY	ITEM	PART NO.	MFG.
	1	ENCLOSURE	SEE INVERTER CHART	HOFFMAN
	1	SUB-PLATE	C-P2420	HOFFMAN
	A/R	DIN RAIL	D5PD2-20	CUTLER-HAMMER
	4	END ANCHOR	C383ES35	CUTLER-HAMMER
	2	END PLATE	C383AP4	CUTLER-HAMMER
	33	TERMINAL BLOCK	C383RK254	CUTLER-HAMMER
	1	JUMPER	C383JC402	CUTLER-HAMMER
GND	1	GROUND TERMINAL	PK7GTA	SQUARE D
	1	GROUND LUG	----	----
--	--	--	--	--
--	--	--	--	--
CB217	1	CIRCUIT BREAKER, 2A	WMS1C2	CUTLER-HAMMER
	A/R	WIRE DUCT, 1" x 3"	--	--
	1	WORKING SPACE CAUTION LABEL, SAFETY YELLOW WITH BLACK ENGRAVING	CUSTOM	--
CR242	1	RELAY, 120VAC, SPDT, DIN-RAIL MOUNT	700-HLT1U1	ALLEN-BRADLEY
MMC203	1	MANUAL MOTOR CONTROLLER	SEE INVERTER CHART	CUTLER-HAMMER
PWS219	1	POWER SUPPLY, 30 WATT	PS5R-SC24	IDEC
DISC201	1	DISCONNECT SWITCH	OT16F3	ABB
DISC201	1	HANDLE	OHBS2AJ	ABB
DISC201	1	SHAFT	OXS6S180	ABB
DISC201	1	ADAPTER, PADLOCK, OPEN PANEL	DS-SA1	ABB
DISC201A	1	N.O. AUX. CONTACT, DISCONNECT	OA1G10	ABB
VFD203	1	INVERTER, 3-PH	SEE INVERTER CHART	ALLEN-BRADLEY
--	--	--	--	--
--	--	--	--	--
CON201C,CON701	2	BULKHEAD HOUSING	CKA-03I	MENCOM
CON701	1	INSERT,FEMALE,12 POLE	CQF-12	MENCOM
CON201C	1	INSERT,FEMALE,4 POLE	CKSF-04	MENCOM
CON201C	1	ID66/67 SEAL KIT	CKR 65	MENCOM
CON701	8	SOCKETS,FEMALE,CRIMP,26-22AWG	CDFA 0.3	MENCOM
	7	CAP,FLUSH,7/8 DIA.	BPF-7/8	CAPLUGS DIVISION
SC205	1	EMI SUPPRESSION CORE, SPLIT HALVES (SC205)	0443167251	FAIR-RITE
	1	PROGRAMMED ETHERNET FIELDBUS CONTROLLER, WAGO pn750-842	SEE ITEM 02	NORDSON
	4	MODULE, INPUT, SINK, 4 PT.	750-408	WAGO
	2	MODULE, OUTPUT, SINK, 4 PT.	750-516	WAGO
	--	--	--	--
	1	MODULE, INTERFACE, ENCODER	750-634	WAGO *
		MODULE, INTERFACE, ENCODER	750-631/000-010	WAGO *
	--	--	--	--
	1	MODULE, END	750-600	WAGO

* - 750-631 AND 750-634 ARE INTERCHANGABLE MODULES, 750-634 REPLACING 750-631.

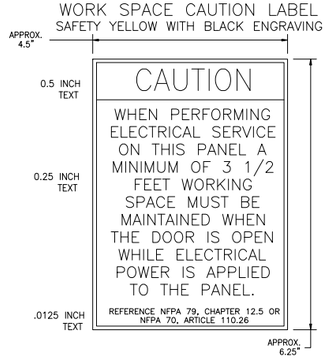
OPTION: PLUG & SPRAY BOOTH B.O.M.

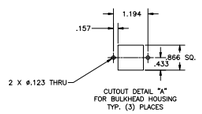
DESIGNATION	QTY	ITEM	PART NO.	MFG.
CON201A	1	RECEPTICLE,5-PIN,MALE,16AWG,36LG	IR5006A20F030	BRAD-HARRISON
CON201B	1	RECEPTICLE,4-PIN,MALE,14AWG,36LG	1R4006A28F030G	BRAD-HARRISON
CON308	1	RECEPTACLE,FEMALE-FEMALE,BULKHEAD,RJ45	ENSP1F5	BRAD-HARRISON
PATCH CABLE	1	PATCH CABLE, CAT5e, T568B, ETHERNET, 48"	----	----

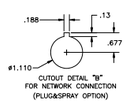
INVERTER CHART

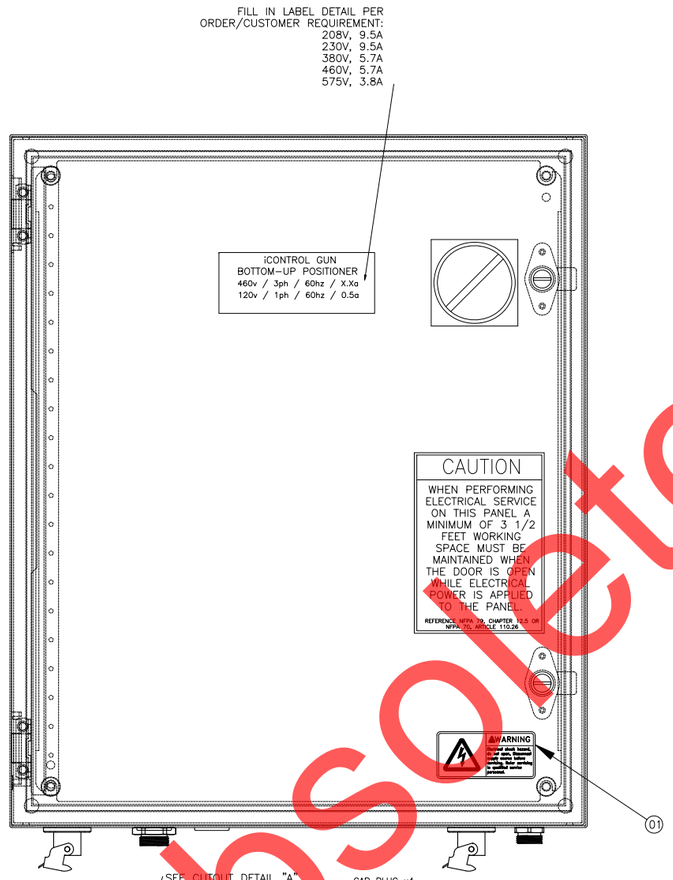
3-PH VOLTS	208	230	380	480	575
MMC203	XTPB010BC1	XTPB6P3BC1	XTPB004BC1	XTPB004BC1	XTPB2P5BC1
VFD203	22B-B8P0N104		22B-D4P0N104		22B-E3P0N104
ENCLOSURE	C-SD24208				

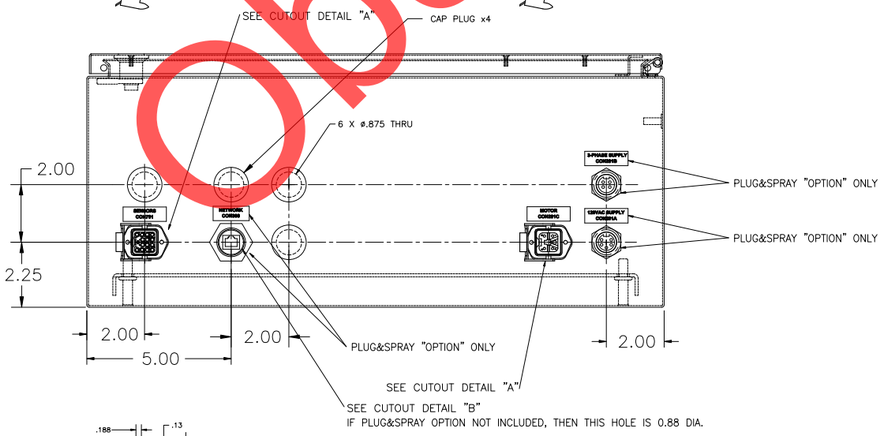
WORK SPACE CAUTION LABEL
SAFETY YELLOW WITH BLACK ENGRAVING

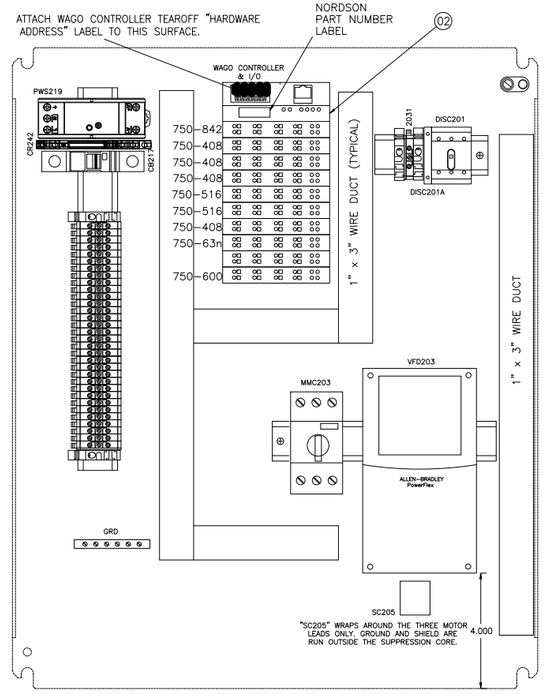












TERMINAL BLOCK LAYOUT

2030
2031
2420
2421
DCCOM
DCCOM
DCCOM
DCCOM
DCCOM
2200
2200
2200
2360
2370
3240
3250
3300
3310
3350
3360
4020
5020
5030
5080
5090
5130
5140
5190
5200

ITEM	ICT	PART NO.	DESCRIPTION	QTY.
02	L	1055963	CONTROLLER,PROGRAMMED,GUN POS'R iCONTROL	1
01	L	226709	LABEL, WARNING, CONTROL PANEL	1

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED
X.XX +/- .030 X.XXX +/- .010
MACHINED SURFACES 125 AA
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.
THREAD LENGTH DIMS. ARE FULL THREAD
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES
THIRD ANGLE PROJECTION

D SIZE

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DRAWN BY DAK DATE 25APR11
CHECKED BY BL APPROVED BY BL
REL NO PE602512

CTRL PANEL, TOP-DOWN,AC, PLUG-IN,iCONTROL

CONTROL NUMBER 1600011 REV. A02

SCALE: NTS
PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
PAGE 1 / 7

USERS 120V 1PH,60 Hz, 10 AMP SUPPLY

INTERLOCKED 120VAC

CON201A 120VAC SUPPLY (OPTIONAL)

RED — WHITE — GRN/YEL — BLACK — ORANGE

2031 — 242 — N/C

DISC201A — 2030 — 2031 — JUMPER TO 2421 — 242

USERS 3PH, 60Hz SUPPLY

CON201B 3 PHASE SUPPLY (OPTIONAL)

L1 L2 L3 — 1 2 3 4 — BLK WHT RED GRN

DISC201 — 1L1 1L2 1L3

MMC203 — 1L1 1L2 1L3 — 1L11 1L21 1L31

VFD203

Allen–Bradley PowerFlex 40

12 13 14 — R2 R1 — L1 L2 L3 — U V W

DIP–SWITCH SETTINGS: 0–10V ☒ 0–20mA ☐ SNK ☒ SRC ☐

ENBL — 01 02 03 04 06

SET JUMPERS AS SHOWN

REMOVE "ENBL" JUMPER

DCCOM 341

3410 341

NOTE: CROSSED MOTOR WIRES

GND — SHLD — GRN/YEL — 1T1 1T2 1T3 — SC205

MOTOR

△ TOP–DOWN PSNR MOTOR 3 PH, 1.5 HP, INVERTER DUTY

"SC205" WRAPS AROUND THE THREE MOTOR LEADS ONLY. GROUND AND SHIELD ARE RUN OUTSIDE THE SUPPRESSION CORE.

CABLE ASSY pn 1102301

CON201C TOP–DN MOTOR

(ORG) 4310 431

(GRN) DCCOM 429

(BLK) 4300 430

(WHT) 4250 425

(RED) 4240 424

PARAMETER SETTINGS		
P	VALUE	DESCRIPTION
P031	A/R	MOTOR NAMEPLATE "VOLTS"
P033	A/R	MOTOR NAMEPLATE "FULL LOAD AMPS"
P035	20	MAXIMUM FREQUENCY
P036	2	START SOURCE – "2–WIRE"
P037	3	STOP MODE – "DCBrkAuto,CF" (works w/ A080)
P038	0	SPEED REFERENCE – "DRIVE POT" (Default)
P039	0.2	ACCELERATION TIME
P040	0.2	DECELERATION TIME
A052	4	PRESET FREQUENCY (10 HZ)
A067	0.2	ACCEL TIME 2
A068	0.2	DECEL TIME 2
A080	1.0	DC Brake Time (works w/ P037–3)

TO CHANGE PARAMETERS: REFER TO ALLEN–BRADLEY POWERFLEX 40 USERS MANUAL, VIEWING AND EDITING PARAMETERS.

221 221 2200 DCCOM

708 — 2200

709 — DCCOM

MACHINE #1 ENCODER

36 PULSE/INCH

710 — 2360 — 524

712 — 2370 — 526

EXHAUSTER RUN INTERLOCK 402

2200 DCCOM 300 300

CB217 2A

PWS219

L N ⏚ — AC INPUT — DC OUTPUT — – DCCOM — + 2200 — 24VDC POWER SUPPLY

24VDC POWER SUPPLY 30 W, 1.3 A

2200 DCCOM 229 229

204 — 2420 — YEL — CR242 (A1) (A2) — YEL — 2421 — 204 — 2031

BLACK

120VAC FR/MAIN SYSTEM PANEL EXHAUSTER RUN

LEGEND
△ – REMOTELY LOCATED DEVICE
⊘ – GUNMOVER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/– .030 X.XXX +/– .010	DRAWN BY BL	DATE 25APR11
	MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602512	CTRL PANEL, TOP–DOWN,AC, PLUG–IN,iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1600011 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING — PAGE 2 / 7

300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321

RJ45 TO RJ45
BULKHEAD CONNECTOR

CON308
NETWORK
(OPTIONAL)

PATCH CABLE

ETHERNET FIELD–
BUS CONTROLLER

VAGO I/O SYSTEM
750–842

24V
0V
+
+
–
–
2200

DCCOM

243 243
2200 DCCOM

2200 DCCOM
322 322

322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343

321 321
2200 DCCOM

4 PT. SINK
INPUT, POS. 1

INPUT LED's
A,C,B,D =
1,5,4,8

DCCOM
JUMPER
3240
3250
3300
3310

ADD JUMPER, AS INDICATED,
TO MATCH MOTION CONFIGURATION
TO THE MACHINE CONTROL.

CONFIGURATION INPUT SETTINGS		
JUMPER	MOTION	NO.
DCCOM to 3240	MANUAL IN/OUT BASE ONLY	1
DCCOM to 3250	AUTO IN/OUT BASE ONLY	2
DCCOM to 3240 + 3250	MANUAL IN/OUT BASE + MANUAL IN/OUT BASE	3
DCCOM to 3300	AUTO IN/OUT BASE + AUTO IN/OUT BASE	4
DCCOM to 3240 + 3300	MANUAL IN/OUT BASE + OSC.	5
DCCOM to 3250 + 3300	AUTO IN/OUT BASE + OSC.	6
DCCOM to 3240 + 3250 + 3300	MANUAL IN/OUT BASE + RECIP	7
DCCOM to 3310	AUTO IN/OUT BASE + RECIP	8
DCCOM to 3240 + 3310	RECIPROCATOR ONLY	9
DCCOM to 3250 + 3310	RECIP + RECIP	10

750–
408

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE
BEFORE THE MACHINE WILL OPERATE.
THE JUMPER(S) DEFINES THE TYPE OF
MACHINE(S) THAT WILL BE CONTROLLED.
THE DESIGNATION AFTER THE (+) SIGN
INDICATES AN OPTIONAL SECOND MACHINE
CONFIGURATION THAT MAY BE CONTROLLED
BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS

DCCOM 702
2200 702
DCCOM 201
2200 DCCOM
400 400

4 PT. SINK
INPUT, POS. 2

INPUT LED's
A,C,B,D =
1,5,4,8

704 3350
707 3360
201 3410

750–
408

MACHINE #1
FORWARD (DOWN) LIMIT

MACHINE #1
REVERSE (UP) LIMIT

MACHINE #1
DRIVE READY

SPARE

LEGEND
△ – REMOTELY LOCATED DEVICE
⊘ – GUNMOVER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	SIZE D	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/– .030 X.XXX +/– .010	DRAWN BY BL	DATE 25APR11
	MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602512	CTRL PANEL, TOP–DOWN,AC, PLUG–IN,iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1600011 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 3 / 7

IF COLORMAX SYSTEM WITH FEED CENTER,
SEE SYSTEM ELECTRICAL DRAWINGS FOR CONNECTION.
ALSO SEE SHEET 5

400 343 343 2200 DCCOM

4 PT. SINK
INPUT, POS. 3

INPUT LED's A,C,B,D = 1,5,4,8

CR242 (11) (14)

402 4020 — SIGNAL FROM BOOTH CONTROL BOOTH FAN RUN

403 4030 — REMOTE E-STOP INPUT "ON" = E-STOP SET

MACHINE TEST INSTRUCTIONS

TO ACTIVATE TESTING, CONNECT APPROPRIATE INPUT(S) TO "DCCOM".
IF TESTING MACHINE 1, CONNECT "RUN TEST AT MACHINE #1 INPUT TO "DCCOM".
IF TESTING MACHINE 2, CONNECT "RUN TEST AT MACHINE #2" INPUT TO "DCCOM".
MANUAL TESTING:
SELECT MACHINE 1 OR 2 INPUT.
RUN FORWARD BY CONNECTING FWD INPUT.
MACHINE SHOULD STOP AT FORWARD LIMIT.
RUN REVERSE BY CONNECTING REV INPUT.
MACHINE SHOULD STOP AT REVERSE LIMIT.
TO RUN REVERSE SLOW SPEED, TOGGLE INPUT 2 BEFORE CONNECTING INPUT 2. MACHINE SHOULD STOP AT REVERSE LIMIT.
AUTO TESTING:
FIRST RUN MANUAL TEST TO THE FORWARD, AND THEN TO THE REVERSE LIMITS. (THIS ACTION SETS AUTO TESTING LIMITS BASED ON ENCODER SIGNAL PROCESSING).
SELECT MACHINE 1 OR/AND MACHINE 2 INPUT.
TO RUN AN AUTO TEST CONNECT BOTH FWD AND REV INPUTS TO "DCCOM".
THE MACHINE(S) WILL RUN FORWARD AND REVERSE BETWEEN TWO POINTS, EACH POINT BEING 1/4 OF TOTAL DISTANCE FROM EACH LIMIT. REVERSE SPEED WILL ALTERNATE BETWEEN NORMAL AND BLOWOFF SPEED.
IF RECIPROCATOR, SPEED WILL BE 3/4 MAX.

1	RUN TEST AT MACHINE #1
5	RUN TEST AT MACHINE #2
2	
6	
3	
7	
4	MACHINE TEST FWD INPUT
8	MACHINE TEST REV INPUT

750-408

413 DCCOM

421 2200 DCCOM
500 500

4 PT. SINK
OUTPUT, POS. 1

OUTPUT LED's A,C,B,D = 1,5,4,8

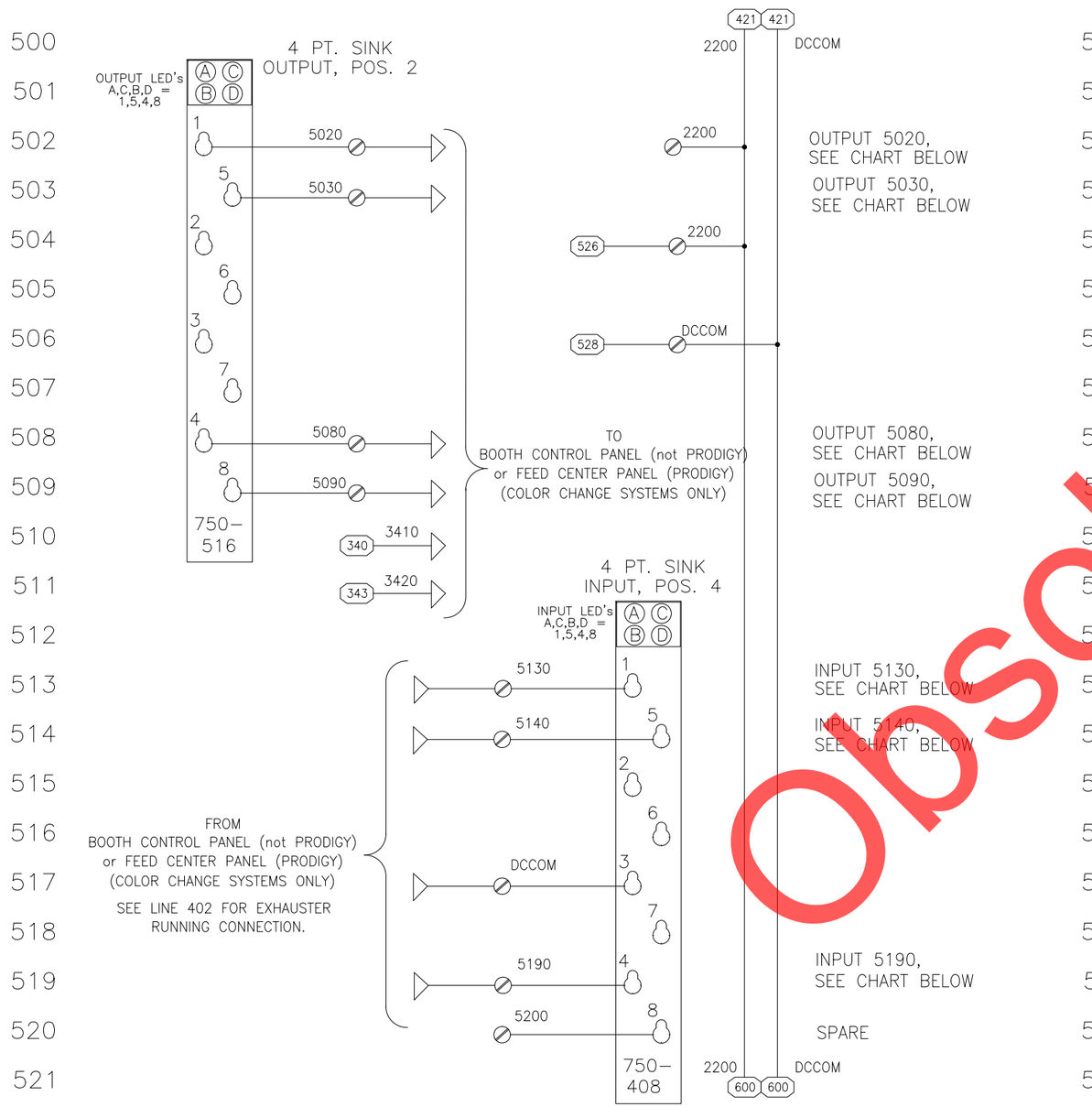
1	4240 (RED)	231	MACHINE #1 ENABLE
5	4250 (WHT)	230	MACHINE #1 FORWARD
2			
6			
3			
7	DCCOM (GRN)	229	MACHINE #1 COMMON
4	4300 (BLK)	229	MACHINE #1 REVERSE
8	4310 (ORG)	229	MACHINE #1 SLOW SPD

750-516

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION	
X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 25APR11	CTRL PANEL, TOP-DOWN,AC, PLUG-IN,iCONTROL
MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL	
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602512		
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1600011 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 4 / 7

1600011



OUTPUT 5020, SEE CHART BELOW

OUTPUT 5030, SEE CHART BELOW

OUTPUT 5080, SEE CHART BELOW

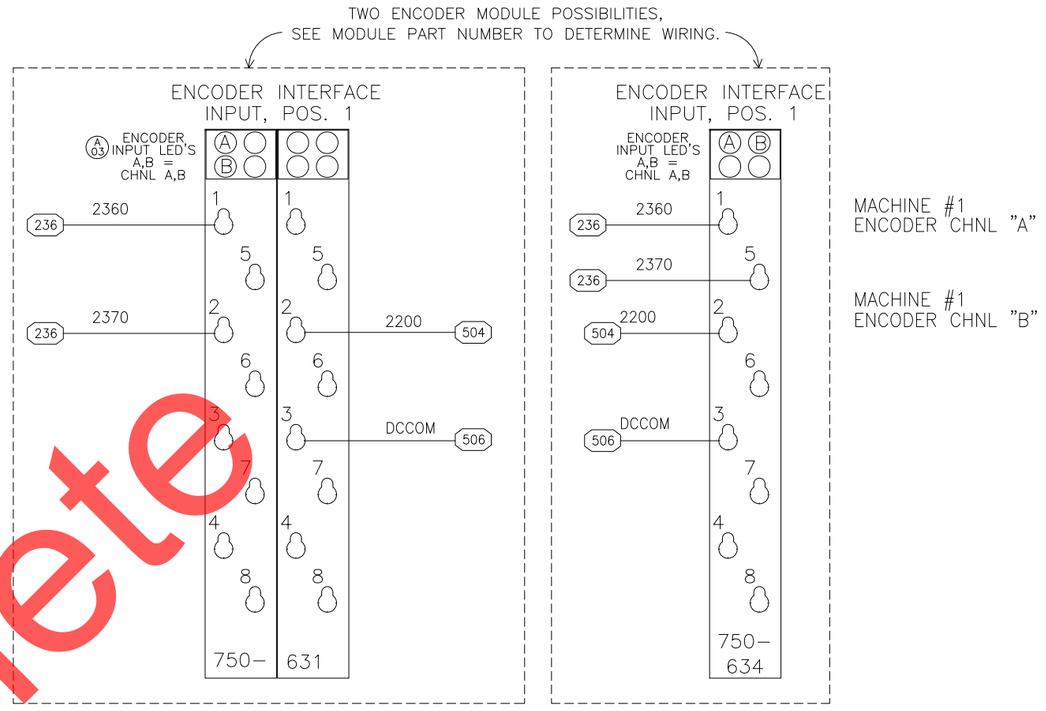
OUTPUT 5090, SEE CHART BELOW

INPUT 5130, SEE CHART BELOW

INPUT 5140, SEE CHART BELOW

INPUT 5190, SEE CHART BELOW

SPARE



Gun Positioner Control Functions, to/from Spray System Control			
Terminal	I/O	not Prodigy (GM1, 2, 3, or 4)	Prodigy (GM1 only)
5020	OUTPUT	Mechanical Brake Control	Lockout (if Oscillator, Off = Lock)
5030	OUTPUT	Spare	Spare
5080	OUTPUT	Ready for Color Change	Spare
5090	OUTPUT	Spare	Spare
5130	INPUT	Disable (Off = Disable)	Spare
5140	INPUT	Run Color Change Cycle	Run Color Change Cycle
5190	INPUT	Spare	Spare
5200	INPUT	Spare	Spare

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED
X.XX +/- .030 X.XXX +/- .010
MACHINED SURFACES 125 AA
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.
THREAD LENGTH DIMS. ARE FULL THREAD
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES
THIRD ANGLE PROJECTION

D SIZE

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DRAWN BY BL DATE 25APR11
CHECKED BY BL APPROVED BY BL
REL NO PE602512
CTRL PANEL, TOP–DOWN,AC, PLUG–IN,iCONTROL
CONTROL NUMBER 1600011 REV. A02
SCALE: NTS
PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
PAGE 5 / 7

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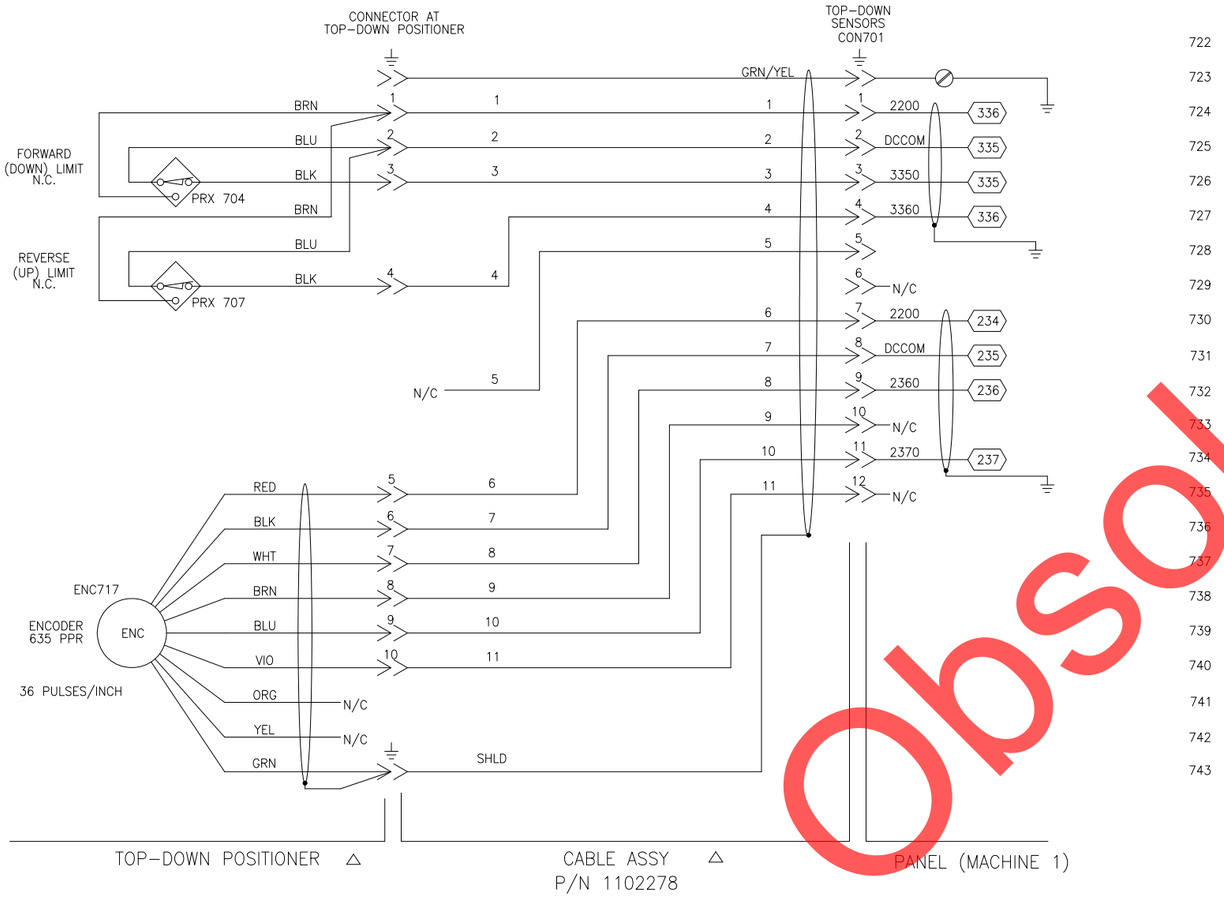
LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUN POSITIONER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 25APR11
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL
FIRST PRODUCT USED ON IN-OUT POSITIONER	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602512	CTRL PANEL, TOP-DOWN,AC, PLUG-IN,iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1600011 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 6 / 7

1600011

CHG LTR	REVISION	BY	CHK	ECR NO.	DATE
–	SEE SHEET 1 FOR NOTES AND REVISION.	–	–	–	–



LEGEND
△ – REMOTELY LOCATED DEVICE
⊘ – GUN POSITIONER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION, POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/– .030 X.XXX +/– .010	DRAWN BY BL	DATE 25APR11
	MACHINED SURFACES 125/ AA	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602512	CONTROL PANEL, TOP–DOWN,AC, PLUG–IN, iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1600011 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 7 / 7

VENDOR'S BILL OF MATERIAL

DESIGNATION	QTY	ITEM	PART NO.	MFG.
	1	ENCLOSURE	SEE INVERTER CHART	HOFFMAN
	1	SUB-PLATE	C-P2420	HOFFMAN
	A/R	DIN RAIL	D5PD2-20	CUTLER-HAMMER
	4	END ANCHOR	C383ES35	CUTLER-HAMMER
	2	END PLATE	C383AP4	CUTLER-HAMMER
	33	TERMINAL BLOCK	C383RK254	CUTLER-HAMMER
	1	JUMPER	C383JC402	CUTLER-HAMMER
GND	1	GROUND TERMINAL	PK7GTA	SQUARE D
	1	GROUND LUG	----	----
--	--	--	--	--
--	--	--	--	--
CB217	1	CIRCUIT BREAKER, 2A	WMS1C2	CUTLER-HAMMER
	A/R	WIRE DUCT, 1" x 3"	--	--
	1	WORKING SPACE CAUTION LABEL, SAFETY YELLOW WITH BLACK ENGRAVING	CUSTOM	--
CR242	1	RELAY, 120VAC, SPDT, DIN-RAIL MOUNT	700-HLT1U1	ALLEN-BRADLEY
MMC203	1	MANUAL MOTOR CONTROLLER	SEE INVERTER CHART	CUTLER-HAMMER
PWS219	1	POWER SUPPLY, 30 WATT	PS5R-SC24	IDEC
DISC201	1	DISCONNECT SWITCH	OT16F3	ABB
DISC201	1	HANDLE	OHBS2AJ	ABB
DISC201	1	SHAFT	OXS6S180	ABB
DISC201	1	ADAPTER, PADLOCK, OPEN PANEL	DS-SA1	ABB
DISC201A	1	N.O. AUX. CONTACT, DISCONNECT	OA1G10	ABB
VFD203	1	INVERTER, 3-PH	SEE INVERTER CHART	ALLEN-BRADLEY
--	--	--	--	--
--	--	--	--	--
CON201C,CON701	2	BULKHEAD HOUSING	CKA-03I	MENCOM
CON701	1	INSERT,FEMALE,12 POLE	CQF-12	MENCOM
CON201C	1	INSERT,FEMALE,4 POLE	CKSF-04	MENCOM
CON201C	1	ID66/67 SEAL KIT	CKR 65	MENCOM
CON701	8	SOCKETS,FEMALE,CRIMP,26-22AWG	CDFA 0.3	MENCOM
	7	CAP,FLUSH,7/8 DIA.	BPF-7/8	CAPLUGS DIVISION
SC205	1	EMI SUPPRESSION CORE, SPLIT HALVES (SC205)	0443167251	FAIR-RITE
	1	PROGRAMMED ETHERNET FIELDBUS CONTROLLER, WAGO pn750-842	SEE ITEM 02	NORDSON
	4	MODULE, INPUT, SINK, 4 PT.	750-408	WAGO
	2	MODULE, OUTPUT, SINK, 4 PT.	750-516	WAGO
	--	--	--	--
	1	MODULE, INTERFACE, ENCODER	750-634	WAGO *
		MODULE, INTERFACE, ENCODER	750-631/000-010	WAGO *
	--	--	--	--
	1	MODULE, END	750-600	WAGO

* - 750-631 AND 750-634 ARE INTERCHANGABLE MODULES, 750-634 REPLACING 750-631.

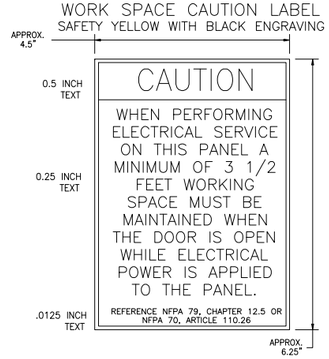
OPTION: PLUG & SPRAY BOOTH B.O.M.

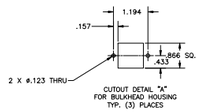
DESIGNATION	QTY	ITEM	PART NO.	MFG.
CON201A	1	RECEPTICLE,5-PIN,MALE,16AWG,36LG	IR5006A20F030	BRAD-HARRISON
CON201B	1	RECEPTICLE,4-PIN,MALE,14AWG,36LG	1R4006A28F030G	BRAD-HARRISON
CON308	1	RECEPTACLE,FEMALE-FEMALE,BULKHEAD,RJ45	ENSP1F5	BRAD-HARRISON
PATCH CABLE	1	PATCH CABLE, CAT5e, T568B, ETHERNET, 48"	----	----

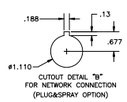
INVERTER CHART

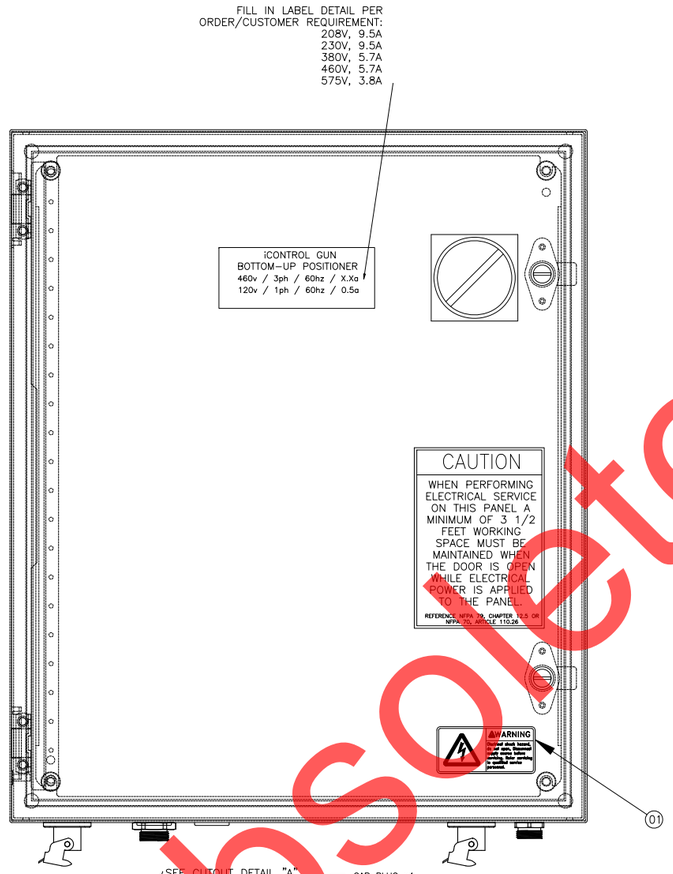
3-PH VOLTS	208	230	380	480	575
MMC203	XTPB010BC1	XTPB6P3BC1	XTPB004BC1	XTPB004BC1	XTPB2P5BC1
VFD203	22B-B8P0N104		22B-D4P0N104		22B-E3P0N104
ENCLOSURE	C-SD24208				

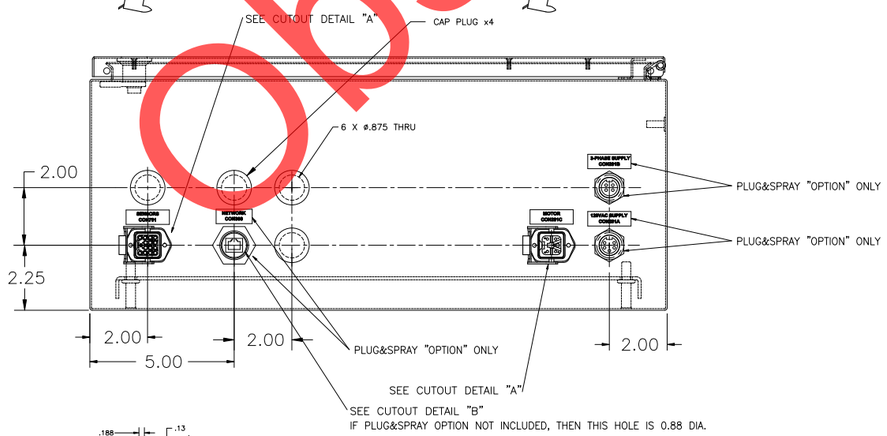
WORK SPACE CAUTION LABEL
SAFETY YELLOW WITH BLACK ENGRAVING

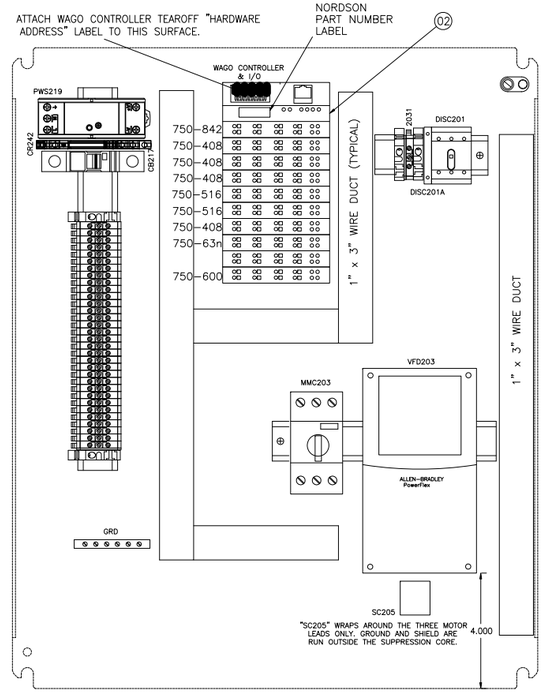












TERMINAL BLOCK LAYOUT

2030
2031
2420
2421
DCCOM
DCCOM
DCCOM
DCCOM
DCCOM
2200
2200
2200
2360
2370
3240
3250
3300
3310
3350
3360
4020
5020
5030
5080
5090
5130
5140
5190
5200

ITEM	ICT	PART NO.	DESCRIPTION	QTY.
02	L	1055963	CONTROLLER,PROGRAMMED,GUN POS'R iCONTROL	1
01	L	226709	LABEL, WARNING, CONTROL PANEL	1

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | SIZE D | NORDSON CORPORATION, POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

X.XX +/- .030 | X.XXX +/- .010 | MACHINED SURFACES 125 AA | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.

DRAWN BY BL | DATE 25APR11 | CHECKED BY BL | APPROVED BY BL | REL NO PE602512

CTRL PANEL, BOT-UP,AC, PLUG-IN,iCONTROL

INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION

CONTROL NUMBER 1600007 | REV. A02

SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | PAGE 1 / 7

USERS 120V 1PH,60 Hz, 10 AMP SUPPLY

INTERLOCKED 120VAC

CON201A 120VAC SUPPLY (OPTIONAL)

RED — WHITE — GRN/YEL — BLACK — ORANGE

2031 — 242 — N/C

DISC201A — 2030 — 2031 — JUMPER TO 2421 — 242

USERS 3PH, 60Hz SUPPLY

CON201B 3 PHASE SUPPLY (OPTIONAL)

L1 L2 L3 — 1 2 3 4 — BLK WHT RED GRN

DISC201 — 1L1 1L2 1L3

MMC203

1L1 — 1L11 — L1
1L2 — 1L21 — L2
1L3 — 1L31 — L3

VFD203

Allen–Bradley PowerFlex 40

12 13 14 — R2 R1

DIP–SWITCH SETTINGS
0–10V ☒
0–20mA ☐
SNK ☒
SRC ☐

ENBL

01 02 03 04 06

SET JUMPERS AS SHOWN

REMOVE "ENBL" JUMPER

DCCOM 341
3410 341

GND — SHLD — GRN/YEL

U — 1T1
V — 1T2
W — 1T3

SC205

MOTOR

△ BOTTOM-UP PSNR MOTOR
3 PH, 1.5 HP, INVERTER DUTY

"SC205" WRAPS AROUND THE THREE MOTOR LEADS ONLY. GROUND AND SHIELD ARE RUN OUTSIDE THE SUPPRESSION CORE.

CABLE ASSY pn 1102301

CON201C BOT–UP MOTOR

(ORG) 4310 431
(GRN) DCCOM 429
(BLK) 4300 430
(WHT) 4250 425
(RED) 4240 424

PARAMETER SETTINGS		
P	VALUE	DESCRIPTION
P031	A/R	MOTOR NAMEPLATE "VOLTS"
P033	A/R	MOTOR NAMEPLATE "FULL LOAD AMPS"
P035	20	MAXIMUM FREQUENCY
P036	2	START SOURCE – "2–WIRE"
P037	3	STOP MODE – "DCBrkAuto,CF" (works w/ A080)
P038	0	SPEED REFERENCE – "DRIVE POT" (Default)
P039	0.2	ACCELERATION TIME
P040	0.2	DECELERATION TIME
A052	4	PRESET FREQUENCY (10 HZ)
A067	0.2	ACCEL TIME 2
A068	0.2	DECEL TIME 2
A080	1.0	DC Brake Time (works w/ P037–3)

TO CHANGE PARAMETERS:
REFER TO ALLEN–BRADLEY POWERFLEX 40 USERS MANUAL, VIEWING AND EDITING PARAMETERS.

221 221 2200 DCCOM

708 — 2200
709 — DCCOM

MACHINE #1 ENCODER
36 PULSE/INCH

712 — 2360 — 524
710 — 2370 — 526

EXHAUSTER RUN INTERLOCK 402

2200 DCCOM
300 300

CB217 2A

PWS219
L N ⏚
AC INPUT
DC OUTPUT
– DCCOM
+ 2200
24VDC POWER SUPPLY

24VDC POWER SUPPLY
30 W, 1.3 A

2200 DCCOM
229 229

204 — 2420 — YEL — (A1) CR242 (A2) — YEL — 2421 — 204 — 2031

BLACK

120VAC FR/MAIN SYSTEM PANEL EXHAUSTER RUN

LEGEND
△ – REMOTELY LOCATED DEVICE
⊘ – GUNMOVER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/– .030 X.XXX +/– .010	DRAWN BY BL	DATE 25APR11
	MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602512	CTRL PANEL, BOTTOM–UP,AC, PLUG–IN,iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1600007 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 2 / 7

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320
321

RJ45 TO RJ45
BULKHEAD CONNECTOR
CON308
NETWORK
(OPTIONAL)

PATCH CABLE

ETHERNET FIELD–
BUS CONTROLLER

WAGO I/O SYSTEM
750–842

24V
0V
+
+
–
–
2200
DCCOM

243 243
2200 DCCOM
2200 DCCOM
322 322

322
323
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327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343

321 321
2200 DCCOM

4 PT. SINK
INPUT, POS. 1

DCCOM
JUMPER
3240
3250
3300
3310

ADD JUMPER, AS INDICATED,
TO MATCH MOTION CONFIGURATION
TO THE MACHINE CONTROL.

CONFIGURATION INPUT SETTINGS		
JUMPER	MOTION	NO.
DCCOM to 3240	MANUAL IN/OUT BASE ONLY	1
DCCOM to 3250	AUTO IN/OUT BASE ONLY	2
DCCOM to 3240 + 3250	MANUAL IN/OUT BASE + MANUAL IN/OUT BASE	3
DCCOM to 3300	AUTO IN/OUT BASE + AUTO IN/OUT BASE	4
DCCOM to 3240 + 3300	MANUAL IN/OUT BASE + OSC.	5
DCCOM to 3250 + 3300	AUTO IN/OUT BASE + OSC.	6
DCCOM to 3240 + 3250 + 3300	MANUAL IN/OUT BASE + RECIP	7
DCCOM to 3310	AUTO IN/OUT BASE + RECIP	8
DCCOM to 3240 + 3310	RECIPROCATOR ONLY	9
DCCOM to 3250 + 3310	RECIP + RECIP	10

INPUT LED's
A,C,B,D =
1,5,4,8

750–
408

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE
BEFORE THE MACHINE WILL OPERATE.
THE JUMPER(S) DEFINES THE TYPE OF
MACHINE(S) THAT WILL BE CONTROLLED.
THE DESIGNATION AFTER THE (+) SIGN
INDICATES AN OPTIONAL SECOND MACHINE
CONFIGURATION THAT MAY BE CONTROLLED
BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS

4 PT. SINK
INPUT, POS. 2

INPUT LED's
A,C,B,D =
1,5,4,8

DCCOM 702
2200 702
DCCOM 201
2200 DCCOM
400 400

704 3350
707 3360
201 3410

750–
408

MACHINE #1
FORWARD (UP) LIMIT

MACHINE #1
REVERSE (DOWN) LIMIT

MACHINE #1
DRIVE READY

SPARE

LEGEND
△ – REMOTELY LOCATED DEVICE
⊘ – GUNMOVER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	SIZE D	NORDSON CORPORATION, POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/– .030 X.XXX +/– .010	DRAWN BY BL	DATE 25APR11
	MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602512	CTRL PANEL, BOT–UP,AC, PLUG–IN,iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1600007 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 3 / 7

IF COLORMAX SYSTEM WITH FEED CENTER,
SEE SYSTEM ELECTRICAL DRAWINGS FOR CONNECTION.
ALSO SEE SHEET 5

343 343

2200 DCCOM

4 PT. SINK
INPUT, POS. 3

INPUT LED's
A,C,B,D =
1,5,4,8

CR242
(11) (14)

4020 — SIGNAL FROM BOOTH CONTROL
BOOTH FAN RUN

4030 — REMOTE E-STOP INPUT
"ON" = E-STOP SET

MACHINE TEST INSTRUCTIONS

TO ACTIVATE TESTING, CONNECT APPROPRIATE INPUT(S) TO "DCCOM".
IF TESTING MACHINE 1, CONNECT "RUN TEST AT MACHINE #1 INPUT TO "DCCOM".
IF TESTING MACHINE 2, CONNECT "RUN TEST AT MACHINE #2" INPUT TO "DCCOM".
MANUAL TESTING:
SELECT MACHINE 1 OR 2 INPUT.
RUN FORWARD BY CONNECTING FWD INPUT.
MACHINE SHOULD STOP AT FORWARD LIMIT.
RUN REVERSE BY CONNECTING REV INPUT.
MACHINE SHOULD STOP AT REVERSE LIMIT.
TO RUN REVERSE SLOW SPEED, TOGGLE INPUT 2 BEFORE CONNECTING INPUT 2. MACHINE SHOULD STOP AT REVERSE LIMIT.
AUTO TESTING:
FIRST RUN MANUAL TEST TO THE FORWARD, AND THEN TO THE REVERSE LIMITS. (THIS ACTION SETS AUTO TESTING LIMITS BASED ON ENCODER SIGNAL PROCESSING).
SELECT MACHINE 1 OR/AND MACHINE 2 INPUT.
TO RUN AN AUTO TEST CONNECT BOTH FWD AND REV INPUTS TO "DCCOM".
THE MACHINE(S) WILL RUN FORWARD AND REVERSE BETWEEN TWO POINTS, EACH POINT BEING 1/4 OF TOTAL DISTANCE FROM EACH LIMIT. REVERSE SPEED WILL ALTERNATE BETWEEN NORMAL AND BLOWOFF SPEED.
IF RECIPROCATOR, SPEED WILL BE 3/4 MAX.

RUN TEST AT
MACHINE #1

RUN TEST AT
MACHINE #2

MACHINE
TEST FWD INPUT

MACHINE
TEST REV INPUT

750-408

DCCOM

2200 DCCOM

500 500

4 PT. SINK
OUTPUT, POS. 1

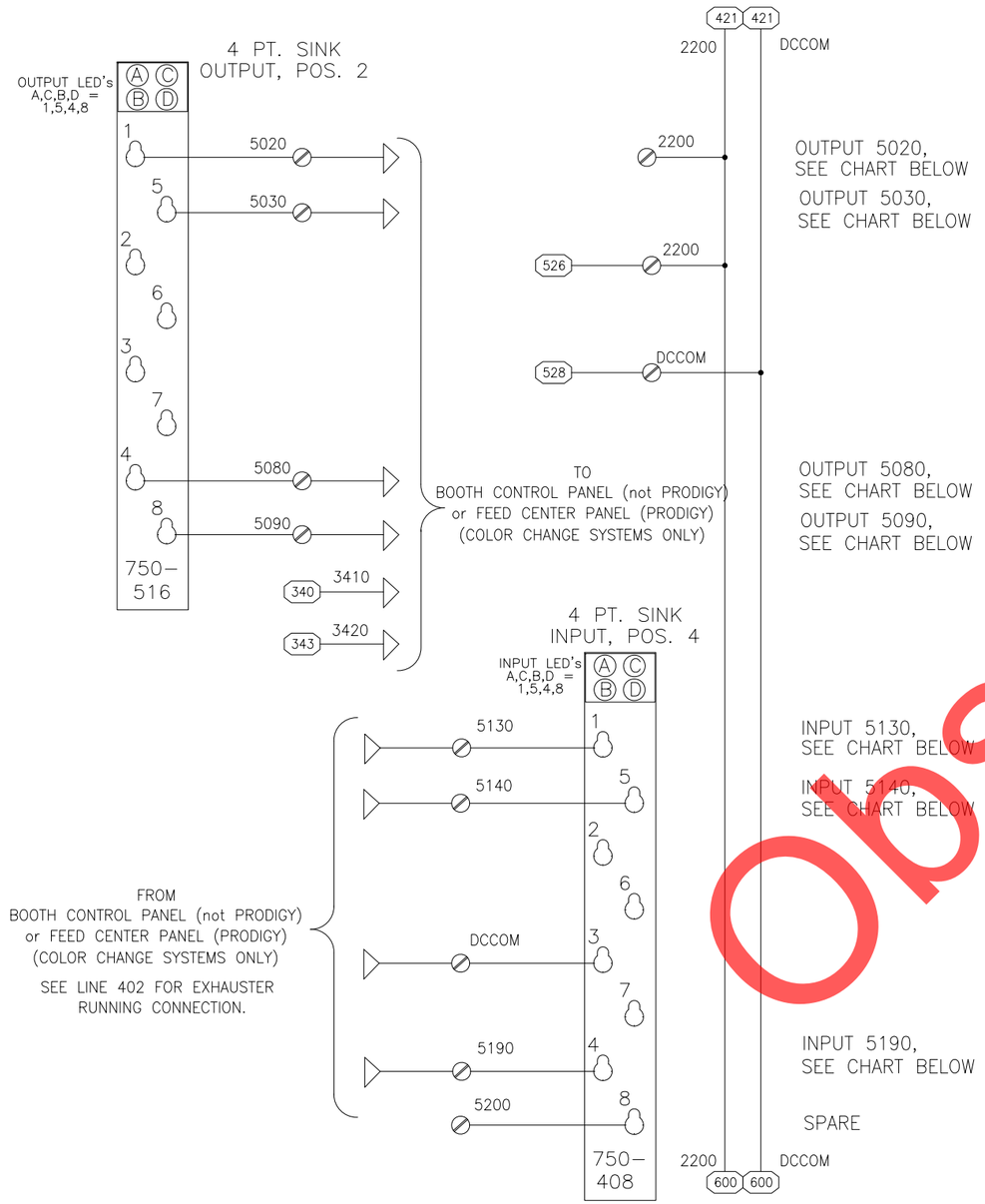
OUTPUT LED's
A,C,B,D =
1,5,4,8

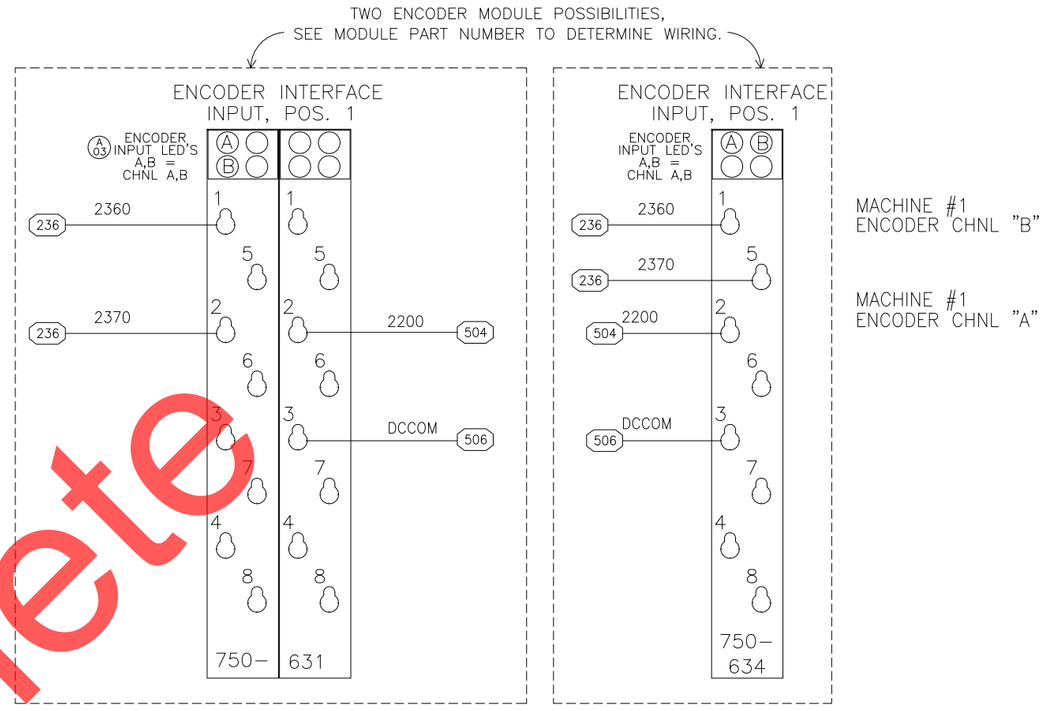
1	4240 (RED)	231 — MACHINE #1 ENABLE
5	4250 (WHT)	230 — MACHINE #1 FORWARD
7	DCCOM (GRN)	229 — MACHINE #1 COMMON
4	4300 (BLK)	229 — MACHINE #1 REVERSE
8	4310 (ORG)	229 — MACHINE #1 SLOW SPD

750-516

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION	
X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 25APR11	CTRL PANEL, BOT-UP,AC, PLUG-IN,iCONTROL
MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL	
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602512		
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1600007 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 4 / 7





Gun Positioner Control Functions, to/from Spray System Control			
Terminal	I/O	not Prodigy (GM1, 2, 3, or 4)	Prodigy (GM1 only)
5020	OUTPUT	Mechanical Brake Control	Lockout (if Oscillator, Off = Lock)
5030	OUTPUT	Spare	Spare
5080	OUTPUT	Ready for Color Change	Spare
5090	OUTPUT	Spare	Spare
5130	INPUT	Disable (Off = Disable)	Spare
5140	INPUT	Run Color Change Cycle	Run Color Change Cycle
5190	INPUT	Spare	Spare
5200	INPUT	Spare	Spare

LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED
X.XX +/- .030 X.XXX +/- .010
MACHINED SURFACES 125 AA
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.
THREAD LENGTH DIMS. ARE FULL THREAD
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES
THIRD ANGLE PROJECTION

D SIZE

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DRAWN BY BL DATE 25APR11
CHECKED BY BL APPROVED BY BL
REL NO PE602512

CTRL PANEL, BOT–UP,AC, PLUG–IN,iCONTROL

CONTROL NUMBER 1600007 REV. A02

SCALE: NTS
PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING

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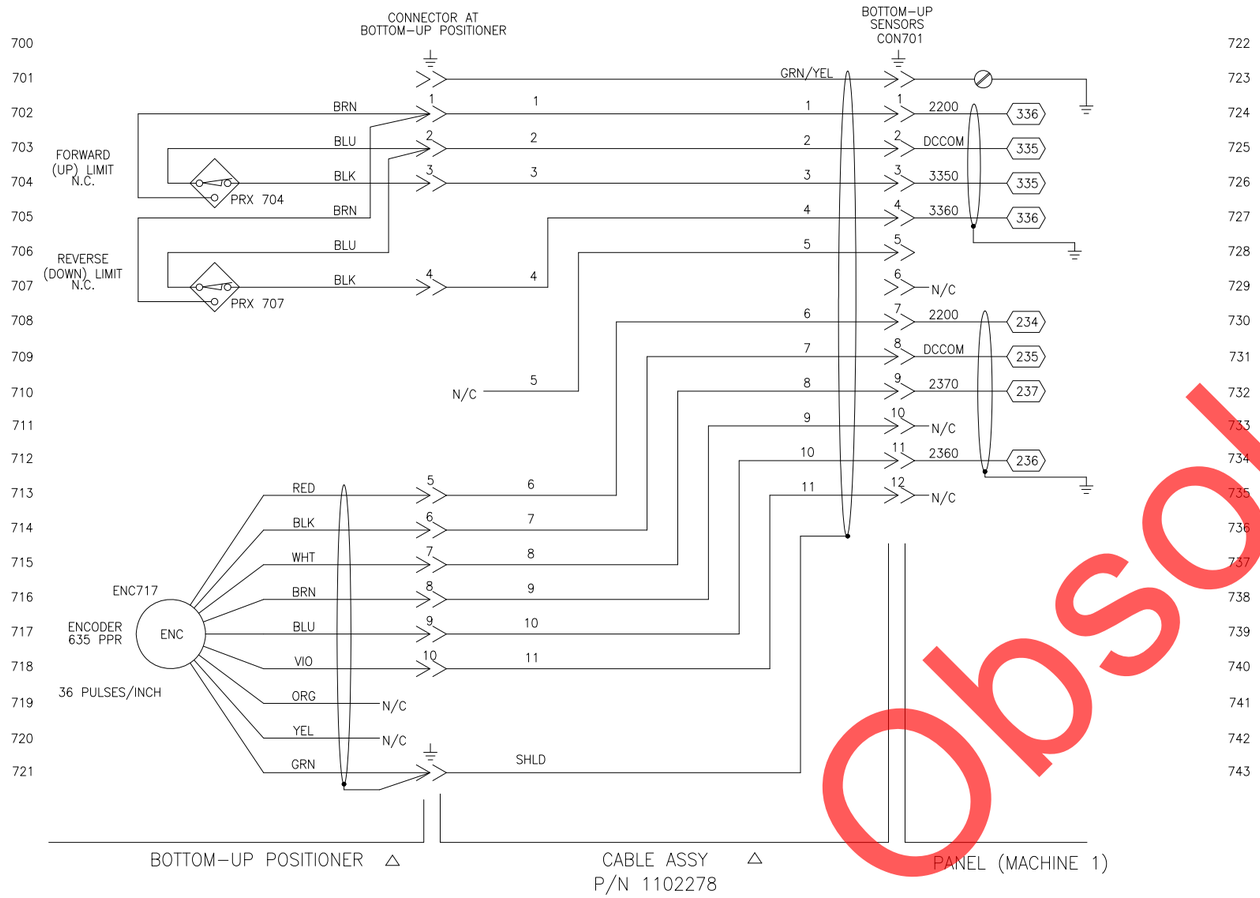
LEGEND
△ - REMOTELY LOCATED DEVICE
⊘ - GUN POSITIONER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 25APR11
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY BL	APPROVED BY BL
FIRST PRODUCT USED ON IN-OUT POSITIONER	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602512	CTRL PANEL, BOT-UP,AC, PLUG-IN,iCONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	1600007 REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 6 / 7



LEGEND
△ – REMOTELY LOCATED DEVICE
⊘ – GUN POSITIONER PANEL TERMINAL

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION, POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
	X.XX +/- .030 X.XXX +/- .010	DRAWN BY BL	DATE 25APR11
	MACHINED SURFACES 125/ AA	CHECKED BY BL	APPROVED BY BL
	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE602512	CTRL PANEL, BOT–UP,AC, PLUG–IN,¡CONTROL
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER 1600007	REV. A02
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING — PAGE 7 / 7