



# Submittal

Trane U.S. Inc.

**Engineer:** Jacobs

**Date:** January 27, 2012

**Prepared For:**

Airtemp Incorporated  
11 Wallace Avenue  
South Portland, ME 04106

**Customer P.O. Number:** 099298

**Customer Project Number:**

**Job Name:**

Hannaford Supermarket - Forest Ave Portland  
295 Forest Avenue  
Portland, ME 04102

**Job Number:** A2-22546

Trane is pleased to provide the enclosed submittal for your review and approval.

<u>Qty</u>	<u>Description</u>	<u>Tag(s)</u>
	Variable Frequency Drives	
2	ABB Model ACS550-PD-08A8-4+B058 5hp VFDs	RTAH-1,2
1	ABB Model ACS550-PD-023A-4+B058 15hp VFD – <i>configured for dual 5hp motor use</i>	RTAH-3
1	ABB Model ACS550-PD-012A-4+B058 7.5hp VFD	OAU-1
	<ul style="list-style-type: none"><li>• 460v/3ph</li><li>• NEMA 3R enclosure</li><li>• Disconnect</li><li>• RTAH-3 sized for dual motor use</li><li>• Drives field mounted and wired by Trane on exterior of unit</li></ul>	

**Dan Broderick**  
Trane U.S. Inc. dba Trane  
30 Thomas Drive  
Westbrook, ME 04092-3824  
Phone: (207) 828-1777  
Fax: (207) 828-1511  
E-Mail: [djbroderick@trane.com](mailto:djbroderick@trane.com)

*The attached information describes the equipment we propose to furnish for this project, and is submitted for your approval.*

*This page intentionally left blank.*

# Submittal Schedule

This schedule includes the products supplied as part of this submittal.

Schedule			Motor Data <sup>1</sup>			Drive Data			
Item	Qty	Tag / Equipment ID	HP	FLA	Voltage	Product ID	HP	Output Amps	Voltage
1	2	RTAH-1,2	5	7.6	460 VAC	ACS550-PD-08A8-4+B058	5	8.8	480 VAC
2	1	OAU-1	7.5	11.0	460 VAC	ACS550-PD-012A-4+B058	7.5	11.9	480 VAC
3	1	RTAH-3	Qty 2 - 5hp	15.2 total	460 VAC	ACS550-PD-023A-4+B058	15	23.0	480 VAC

**Notes:** 1. AC Motor Data is per National Electrical Code Table 430.250 for typical motors used in most applications and is provided as typical data only. DC motor data is per typical industry standards. Actual motor data may vary.

# Submittal Schedule Details for

Item	Tag / Equipment ID	Product ID
1	RTAH-1, RTAH-2	ACS550-PD-08A8-4+B058

Item Description
<p><b>Input Voltage:</b> 480 VAC  <b>Rated Output Current:</b> AMPS 110% 1 min - Normal Duty  <b>Construction:</b> Drive with Disconnect  <b>Enclosure:</b> NEMA 3R  <b>Nominal Horsepower:</b> 5  <b>Frame Size:</b> R1  <b>Input Disconnecting Means:</b> Disconnect  <b>Bypass:</b> None  <b>Input Impedance:</b> 5% for R1 to R5, 3% for R6 to R8  <b>Short Circuit Current Rating:</b> 100 kA  <b>Communication Protocols:</b> Modbus RTU  <b>Other Options:</b></p>

Drive Input Fuse Ratings <sup>1</sup>	
Amps (600 V)	Bussmann Type
15	KTK-R-15

Wire Size Capacities of Power Terminals				
Circuit Breaker	Disconnect Switch	Terminal Block	Overload Relay	Ground Lug
N/A N/A	#10 7 in-lbs	#10 12 in-lbs	N/A N/A	#10 35 in-lbs

Dimensions and Weights				
Height in / mm	Width in / mm	Depth in / mm	Weight lbs / kg	Dimension Drawing
34 / 864	17.8 / 452	13.5 / 343	128 / 58.1	3AUA0000016377 Sheet 1

Heat Dissipation & Airflow Requirements			
Power Losses		Airflow	
Watts	BTU/Hr	CFM	CM/Hr
127	433	26	44

Reference Drawings		
Power Wiring	Connection Diagram	Dimension Detail
PD00S312PW-A	PCPDS316CC-A	3AUA0000016377 Sheet 1

# Submittal Schedule Details for

Item	Tag / Equipment ID	Product ID
2	OAU-1	ACS550-PD-012A-4+B058

Item Description
<p><b>Input Voltage:</b> 480 VAC  <b>Rated Output Current:</b> AMPS 110% 1 min - Normal Duty  <b>Construction:</b> Drive with Disconnect  <b>Enclosure:</b> NEMA 3R  <b>Nominal Horsepower:</b> 7.5  <b>Frame Size:</b> R1  <b>Input Disconnecting Means:</b> Disconnect  <b>Bypass:</b> None  <b>Input Impedance:</b> 5% for R1 to R5, 3% for R6 to R8  <b>Short Circuit Current Rating:</b> 100 kA  <b>Communication Protocols:</b> Modbus RTU  <b>Other Options:</b></p>

Drive Input Fuse Ratings <sup>1</sup>	
Amps (600 V)	Bussmann Type
15	KTK-R-15

Wire Size Capacities of Power Terminals				
Circuit Breaker	Disconnect Switch	Terminal Block	Overload Relay	Ground Lug
N/A N/A	#10 7 in-lbs	#10 12 in-lbs	N/A N/A	#10 35 in-lbs

Dimensions and Weights				
Height in / mm	Width in / mm	Depth in / mm	Weight lbs / kg	Dimension Drawing
34 / 864	17.8 / 452	13.5 / 343	128 / 58.1	3AUA0000016377 Sheet 1

Heat Dissipation & Airflow Requirements			
Power Losses		Airflow	
Watts	BTU/Hr	CFM	CM/Hr
172	587	26	44

Reference Drawings		
Power Wiring	Connection Diagram	Dimension Detail
PD00S312PW-A	PCPDS316CC-A	3AUA0000016377 Sheet 1

# Submittal Schedule Details for

Item	Tag / Equipment ID	Product ID
3	RTAH-3	ACS550-PD-023A-4+B058

Item Description
<p><b>Input Voltage:</b> 480 VAC  <b>Rated Output Current:</b> AMPS 110% 1 min - Normal Duty  <b>Construction:</b> Drive with Disconnect  <b>Enclosure:</b> NEMA 3R  <b>Nominal Horsepower:</b> 15  <b>Frame Size:</b> R2  <b>Input Disconnecting Means:</b> Disconnect  <b>Bypass:</b> None  <b>Input Impedance:</b> 5% for R1 to R5, 3% for R6 to R8  <b>Short Circuit Current Rating:</b> 100 kA  <b>Communication Protocols:</b> Modbus RTU  <b>Other Options:</b></p>

Drive Input Fuse Ratings <sup>1</sup>	
Amps (600 V)	Bussmann Type
30	KTK-R-30

Wire Size Capacities of Power Terminals				
Circuit Breaker	Disconnect Switch	Terminal Block	Overload Relay	Ground Lug
N/A N/A	#8 7 in-lbs	#6 12 in-lbs	N/A N/A	#6 35 in-lbs

Dimensions and Weights				
Height in / mm	Width in / mm	Depth in / mm	Weight lbs / kg	Dimension Drawing
34 / 864	17.8 / 452	13.5 / 343	134 / 60.8	3AUA0000016377 Sheet 1

Heat Dissipation & Airflow Requirements			
Power Losses		Airflow	
Watts	BTU/Hr	CFM	CM/Hr
337	1150	52	88

Reference Drawings		
Power Wiring	Connection Diagram	Dimension Detail
PD00S312PW-A	PCPDS316CC-A	3AUA0000016377 Sheet 1

## ACS550 Product Overview

### *Description*

With drives ranging from 0.75 to 550Hp (0.75 to 355kW), the ACS550 AC Drive features a multi-lingual, full graphical control panel that also provides start-up, maintenance and diagnostic assistants. The assistants simplify drive set-up, operation, and fault diagnostics. The control panel can be mounted on the cover of the drive or remotely and has capabilities to upload and download drive configuration parameters.

All ACS550 drives are current rated devices. The HP ratings provided are for reference only and are based on typical 4-pole motors at nominal voltages (NEC Table 430.250). If full motor torque is required, ensure the drive has a continuous current rating equal or greater than the full load amp rating of the motor (if full motor torque is required). Motor power in kW ratings are provided where applicable and are based upon IEC 4-pole motor ratings.

The ACS550 is available in both "Normal Duty" ratings and "Heavy Duty" ratings. The Normal Duty rating provides a 110% short term overload rating for 1 minute of every 10 minutes. The Heavy Duty rating provides a 150% short term overload rating for 1 minute in ten minutes. 180% overload capacity is available for 2 seconds every 1 minute.

The ACS550 comes with an extensive library of preprogrammed application macros that, at the touch of a button, allow rapid configuration of inputs, outputs, and parameters for specific applications to maximize convenience and minimize start-up time.



## ACS550 Standard Features

### Standard Features

UL, cUL, CSA, CE (208-480V) and GOST-R  
 Full Graphic and Multilingual Display with Real-time clock and assistant  
 Start-Up Assistant with Verify  
 Motor ID Run  
 Motor Control  
 Sensorless Vector and Flux Vector  
 Scalar Control  
 Input Fuses and Disconnect (ACS550-U2, PD, R5-R8 PC and CC)  
 1st Environment, Restricted CE Approval for 200-480Vtypes (30 m motor cable for R1-R6 frame.  
 2nd Environment for R7 & R8  
 Two (2) programmable Analog Inputs  
 Six (6) programmable Digital inputs  
 Two (2) programmable Analog Outputs  
 Three (3) Programmable Form C Relay Outputs  
 Adjustable filters on Analog inputs and outputs  
 Input Speed Signals  
 Two (2) Current 0 (4) - 20 mA, 0 (2) - 10VDC  
 Increase/Decrease reference Contacts  
 Fieldbus adapters (communication modules)  
 Start/Stop  
 2 wire control (dry contact closure)  
 3 wire control (momentary dry contacts)  
 Adjustable Current Limit  
 Adjustable Torque Limit  
 Nine (9) Supervision Functions  
 Electronic Reverse  
 Power Loss Ride-Through  
 DC Injection Braking (in Scalar ONLY)  
 DC Magnetizing Start (provides maximum starting torque)  
 DC Hold  
 Flux Braking  
 Jog  
 Flux Optimization  
 Seven (7) Preset Speeds  
 Three (3) Critical Speed Lockout Bands  
 Self-Tuning Speed Controller  
 Automatic Reset Customer Selectable  
 Two (2) Independently Adjustable Accel and Decel Ramps  
 Linear or Adjustable "S" Curve Accel/Decel Ramps  
 Ramp to Stop or Coast to a Stop  
 Maximum Frequency Programmable up to 500 Hz  
 Two (2) Integral Programmable PID Setpoint Controllers  
 Mathematical Functions on Analog Reference Signals  
 DC Choke (R1 - R4 Frames) and AC Reactor (R5 Frames & above) Reactor  
 Integral Brake Chopper (R1 & R2 Frames)  
 Reference Trim  
 Mechanical Brake Control  
 Emergency Ramp Stop  
 Built-in Modbus RTU  
 Maintenance Calculator (v3.11a+)  
 Serial Communications Assistant (v3.11a+)  
 Drive Performance Optimization Assistant (v3.11a+)  
 User-defined Underload Curve (v3.11a+)  
 Coated Boards

### Programmable Fault Functions

AI (1,2 Loss)  
 Encoder Error  
 Panel Loss  
 Assistant External Fault  
 Motor Thermal Protection  
 Stall Protection  
 Underload  
 Motor Phase Loss  
 Ground Fault  
 Communications Fault  
 Supervision of optional IO

### Preprogrammed Protections:

Overcurrent  
 Short Circuit and Ground Fault  
 Overvoltage (Intermediate Circuit)  
 Undervoltage (Intermediate Circuit)  
 Input Phase Loss and Output Miswiring  
 Drive and Motor Overtemperature  
 Internal fault  
 Overspeed  
 Input power to Output (R1-R4)

### Available options

I/O Options  
 3 Relay Extension Module OREL-01  
 115/230V Digital Interface Module OHDI-01  
 Pulse Encoder Interface OTAC-01  
 Fieldbus Adapter Modules  
 DeviceNet RDNA-01  
 Profibus-DP RPBA-01  
 ControlNet RCNA-01  
 CANopen RCAN-01  
 Ethernet/IP and Modbus/TCP RETA-01  
 Profinet IO and Modbus/TCP RETA-02  
 Dynamic Braking Units and Choppers  
 DriveWindow Light@-based Start-up & Programming  
 Fan Replacement Kits  
 NEMA 12 or 4X Remote Panel Mounting Kit  
 Flange Mounting Kits (R1 - R6)  
 FlashDrop  
 Drive with Disconnect or Circuit Breaker  
 Drive with Bypass  
 NEMA 3R Enclosure  
 NEMA 12 Enclosure





## ACS550 Specifications

### Input Connection

Input Voltage (U1, V1, W1)	(U1, V1, W1)208/220/230/240Vac 3-phase +10% / -15% 380/400/415/440/460/480Vac 3-phase +10% / -15% 500/525/550/575/600Vac 3-phase +10 / -15%
Input Frequency	48 to 63 Hz, maximum rate of change 17%/second
Line Imbalance	Max +/-3% of nominal phase to phase input voltage
Fundamental Power Factor	0.98 (at nominal load)
Connection	Terminals U1, V1, W1

### Output Connection

Output Voltage	0 to U1, 3-phase symmetrical, UN at the field weakening point
Output Frequency	0 to 500 Hz
Frequency Resolution	0.01 Hz
Continuous Current	1.0 * I <sub>2N</sub> (normal use) 1.0 * I <sub>2hd</sub> (heavy-duty use)
Short Term Overload Capacity	IN <sub>max</sub> = 1.1 * I <sub>2N</sub> (1 min / 10 minutes) IN <sub>hdmax</sub> = 1.5 * I <sub>2hd</sub> (1 min / 10 minutes)
Peak Overload Capacity	180% of I <sub>2hd</sub> for 2 seconds each minute
Field Weakening Point	10 to 500 Hz
Switching Frequency	1, 4, 8 or 12kHz (Frame dependent)
Acceleration & Deceleration Time	0.0 to 1800 s
Efficiency	98% at nominal power level
Short circuit withstand rating	100,000 AIC
Connection	Terminals U2, V2, W2

### Ambient Conditions, Operation

Air Temperature	-15° to 40°C (5° to 104°F), no frost allowed, above 40°C the maximum output current is de-rated 1% for every additional 1°C (up to 50°C (122°F) maximum limit)
Relative Humidity	Less than 95%, no condensation allowed
Contamination Levels	
IEC	60721-3-1, 60721-3-2 and 60721-3-3
Chemical Gasses	3C2
Solid Particles	3S2
Installation Site Altitude	0 to 1000 m (3300 ft) above sea level. At sites over 1000 m above sea level, the maximum power is de-rated 1% for every additional 100 m (330 ft). If the installation site is higher than 2000 m above sea level, please contact your local ABB distributor or representative for further information.

### Altitude Ambient Conditions, Storage & Transportation (in Protective Shipping Package)

Air Temperature	-40° to 70°C (-40° to 158°F)
Relative Humidity	Less than 95%, no condensation allowed
Atmospheric Pressure	70 to 106 kPa (10.2 to 15.4 PSI)
Vibration Max	In accordance with ISTA 1A and 1B specifications
Shock (IEC 60068-2-29)	Max 100 m/s <sup>2</sup> (330 ft/s <sup>2</sup> ) 11 ms (36 fts)
Free Fall	R1: 76 cm (30 in) R2: 61 cm (24 in) R3: 46 cm (18 in) R4: 31 cm (12 in) R5: 25 cm (10 in) R6: 15 cm (6 in)

### Cooling Information

Cooling Method	Internal Fan
Power Loss	Approximately 3% of rated power

# ACS550 Specifications (continued)

Maximum wire size for control terminals 1.5 mm2 (146 AWG)

## Analog Inputs

Two (2) Programmable  
 Current Reference 0 (4) to 20 mA, 100 Ohms, single ended  
 Voltage Reference 0 (2) to 10 V, 312 kOhm, single ended  
 Accuracy +/- 1%  
 Maximum Delay 12...32ms  
 Resolution 0.1%  
 Potentiometer Reference Power Supply Voltage +10 VDC +/-2%  
 Maximum Load 10 mA  
 Applicable Potentiometer 1 kOhm to 10 kOhm

## Analog Outputs

Two (2) Programmable Current Outputs  
 Signal Level 0 (4) to 20 mA  
 Accuracy +/-3% Full Scale Range at 25°C (77°F)  
 Maximum Load Impedance 500 ohms

## Digital Inputs

Six (6) Programmable Digital Inputs  
 Isolation Isolated as one group  
 Signal Level 12...24 VDC, (10 V Logic 0). PNP and NPN  
 Input Current 15 mA at 24VDC  
 Maximum Delay 5 ms +/- 1ms  
 Internal 24 VDC Supply for Digital Inputs  
 Voltage 24 VDC, +/- 10%  
 Maximum Current 250 mA  
 Protection Short Circuit Proof

## Relay Outputs

Three (3) Programmable Relay Outputs  
 Maximum switching voltage 250 VAC / 30 VDC  
 Maximum switching current 6 A at 30VDC, 1500 VA at 230VAC, or 0.4A at 120VDC  
 Maximum Continuous Current IC = 2 Amps RMS  
 Contact Material Silver Nickel (AgN)  
 Isolation Test Voltage 4 kVAC, 1 minute  
 Output Updating Time 100 ms

## Protections

Single Phase Protected (input & output)  
 Overvoltage Trip Limit 1.3 \* V1max  
 Undervoltage Trip Limit 0.65 \* V1min  
 Overtemperature 115°C (239°F) R1 - R4 and R7 & R8,  
 125°C (257°F) R5 & R6  
 Short Circuit Protected  
 Auxiliary Voltage Protected  
 Ground Fault Protected  
 Microprocessor Fault Protected  
 Motor Stall Protection Protected  
 Motor Overtemperature Protected (I2t)  
 Input Line Impedance 5% equivalent swing DC choke (R1-R4)  
 3% AC line Reactor (R5-R8)

## Motor / Drive Capabilities

$$2 \leq \frac{I_m}{I_{2hd}} \leq 2$$

$$0.2 \leq \frac{P_m}{P_{Nhd}} \leq 0.2$$

**ACS550 products carry third party certification as follows;**

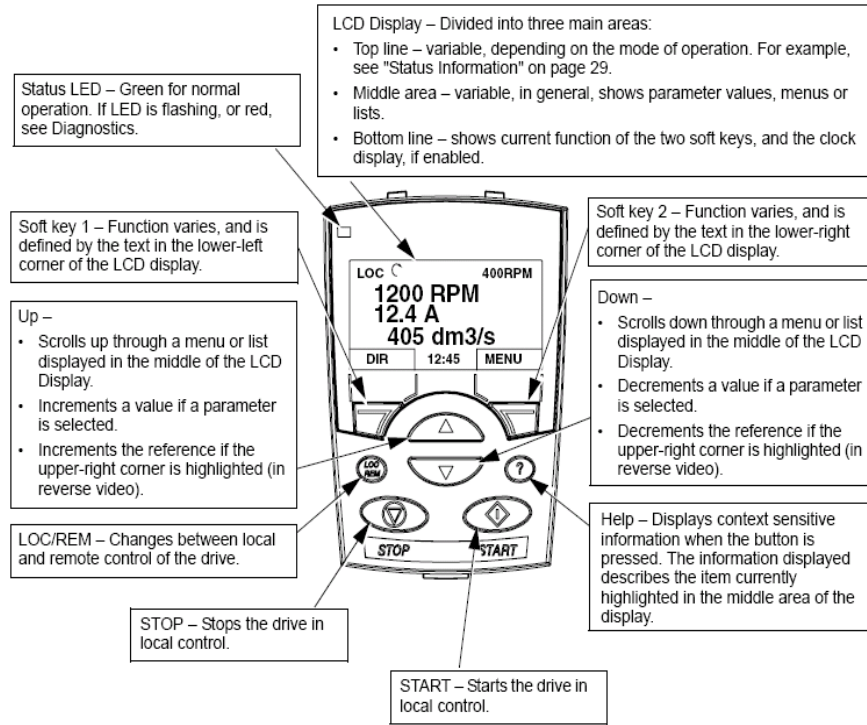
<b>Product</b>	<b>Certification</b>
ACS550-U1 240V & 480V	UL, cUL, CSA, CE, C-Tick and GOST-R
ACS550-U1 600 V	UL, cUL, CSA, C-Tick and GOST-R
ACS550-U2	UL, cUL and CE
ACS550-CC	UL and cUL
ACS550-PC and PD	UL and cUL

**ACS550 Control Panel****Assistant Control Panel Features**

The ACS550 Assistant Control Panel features:

- Intuitive to operate
- Start-up Assistant to ease drive commissioning
- Real Time Clock
- Diagnostic and Maintenance functions
- Full Graphic Display – **BIG BOLD letters**
- Displays 3 Operating parameters – Group 01
- Parameters are Alpha-numeric
- N. A. version supports 18 languages as standard
  - English, English (Am), German, Italian, Spanish, Portuguese, Dutch, French, Danish, Finnish, Swedish, Russian, Polish, Turkish, Czech, Hungarian, Korean, Chinese
- Dedicated Help key
- Key functions change (soft keys)
- Back-up and Restore
  - Parameters and/or motor data
- Changed Parameter Display
  - Creates unique short menu
  - Shows parameters that differ from default
- Copy function
  - Parameters can be copied to the control panel memory for later transfer to other drives or for backup of a particular system.

The following graphic summarizes the button functions and displays on the Assistant Control Panel.



## Cable Connections

When installing input power and motor wiring, refer to the following, as appropriate:

Terminal	Description
U1, V1, W1*	3-phase power supply input
PE	Protective Ground
U2, V2, W2	Power output to motor

The ACS550 -x1-xxx-2 (208...240V series) can be used with a single phase supply, if output current is derated by 50%. For single phase supply voltage, connect power at U1 and W1.

For drives using braking (optional), refer to the following, as appropriate:

Frame Size	Terminal	Description	Braking Accessory
R1, R2	BRK+, BRK	Braking resistor	Braking resistor.
R3, R4, R5, R6	UDC+, UDC	DC bus	Contact your ABB representative to order either: -Braking unit or -Chopper and resistor

## ACS550 Control Terminals

The following provides information for connecting control wiring at X1 on the drive.

X1	Identification	Hardware Description
1	SCR	Terminal for signal cable screen. (Connected internally to chassis ground.)
2	AI 1	Analog input channel 1, programmable. Default <sup>2</sup> = frequency reference. Resolution 0.1%, accuracy $\pm 1\%$ .
		J1:AI1 OFF: 0...10 V ( $R_i = 312 \text{ k}\Omega$ )
		J1:AI1 ON: 0...20 mA ( $R_i = 100 \Omega$ )
3	AGND	Analog input circuit common (connected internally to chassis gnd. through 1 M $\Omega$ ).
4	+10 V	Potentiometer reference source: 10 V $\pm 2\%$ , max. 10 mA ( $1\text{k}\Omega < R < 10\text{k}\Omega$ ).
5	AI2	Analog input channel 2, programmable. Default <sup>2</sup> = not used. Resolution 0.1%, accuracy $\pm 1\%$ .
		J1:AI2 OFF: 0...10 V ( $R_i = 312 \text{ k}\Omega$ )
		J1:AI2 ON: 0...20 mA ( $R_i = 100 \Omega$ )
6	AGND	Analog input circuit common (connected internally to chassis gnd. through 1 M $\Omega$ ).
7	AO1	Analog output, programmable. Default <sup>2</sup> = frequency. 0...20 mA (load < 500 $\Omega$ ).
8	AO2	Analog output, programmable. Default <sup>2</sup> = current. 0...20 mA (load < 500 $\Omega$ ).
9	AGND	Analog output circuit common (connected internally to chassis gnd. through 1 M $\Omega$ ).
10	+24 V	Auxiliary voltage output 24 VDC / 250 mA (reference to GND), short circuit protected.
11	GND	Auxiliary voltage output common (connected internally as floating).
12	DCOM	Digital input common. To activate a digital input, there must be $\geq +10 \text{ V}$ (or $\leq -10 \text{ V}$ ) between that input and DCOM. The 24 V may be provided by the ACS550 (X1-10) or by an external 12...24 V source of either polarity.
13	DI 1	Digital input 1, programmable. Default <sup>2</sup> = start/stop.
14	DI 2	Digital input 2, programmable. Default <sup>2</sup> = fwd/rev.
15	DI 3	Digital input 3, programmable. Default <sup>2</sup> = constant speed sel (code).
16	DI 4	Digital input 4, programmable. Default <sup>2</sup> = constant speed sel (code).
17	DI 5	Digital input 5, programmable. Default <sup>2</sup> = ramp pair selection (code).
18	DI 6	Digital input 6, programmable. Default <sup>2</sup> = not used.
19	RO1C	Relay output 1, programmable. Default <sup>2</sup> = Relay Maximum: 250 VAC / 30 VDC, 2 A Minimum: 500 mW (12 V, 10 mA)
20	RO1A	
21	RO1B	
22	RO2C	Relay output 2, programmable. Default <sup>2</sup> = Running Maximum: 250 VAC / 30 VDC, 2 A Minimum: 500 mW (12 V, 10 mA)
23	RO2A	
24	RO2B	
25	RO3C	Relay output 3, programmable. Default <sup>2</sup> = Fault (-1) Maximum: 250 VAC / 30 VDC, 2 A Minimum: 500 mW (12 V, 10 mA)
26	RO3A	
27	RO3B	

<sup>1</sup> Digital input impedance 1.5 k $\Omega$ . Maximum voltage for digital inputs is 30 V.

<sup>2</sup> Default values depend on the macro used. Values specified are for the default macro.

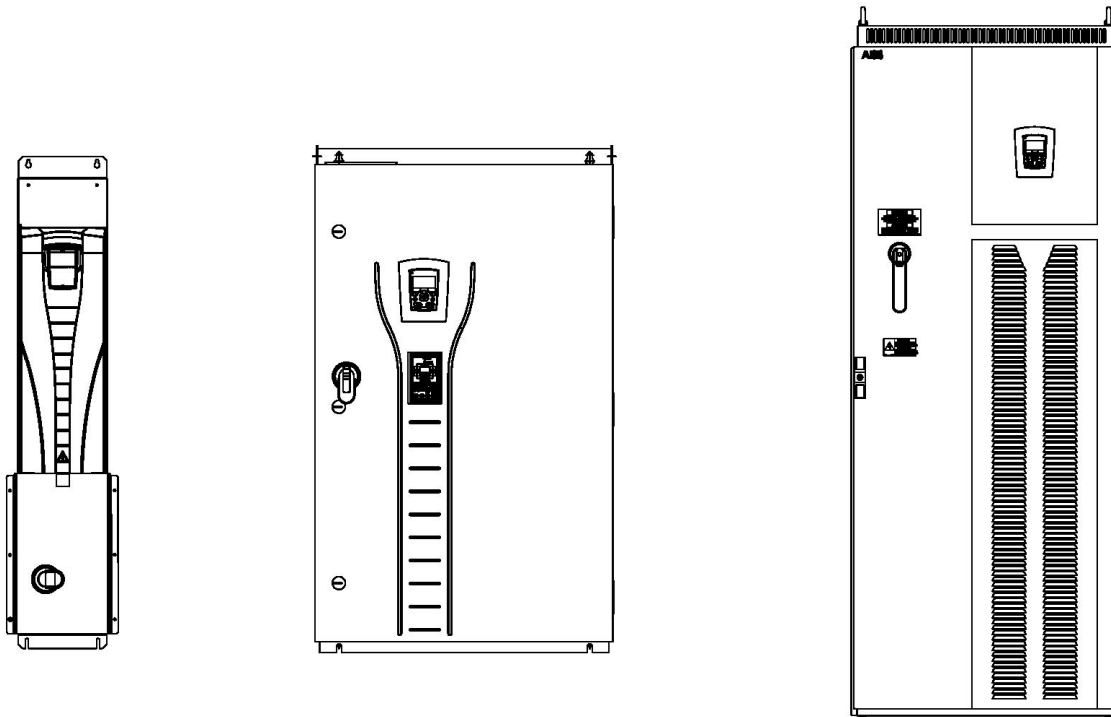
## Package Drive with Disconnect Standard Features

### ACS550 Package Drive with Disconnect - Overview

The ACS550 Package Drive with Disconnect is an ACS550 Variable Frequency Drive enclosed with either an input disconnect switch and fast acting fuses (ACS550-PD) or an input circuit breaker (ACS550-PC). The ACS550 Package Drive with Disconnect provides a door-mounted input disconnect operator (padlockable in the OFF position), electronic motor overload protection, local operator keypad with graphics display, and provisions for external control connections.

UL Type 1 (NEMA 1) and UL Type 12 (NEMA 12) Package Drive with Disconnect units are available from 1 to 100 HP at 208/240V, 1 to 550 HP at 480V, and 2 to 150 HP at 600V. UL Type 1 and UL Type 12 units are wall mounted from 1 to 200 HP and floor mounted from 250 to 550 HP. The operator keypad is mounted on the door of the enclosure.

For outdoor applications, UL Type 3R (NEMA) 3R enclosed ACS550-PC and -PD Drive with Disconnect packages are available from 1 to 100 HP at 208/240V, 1 to 200 HP at 480V and 2 to 150 HP at 600V. Construction is sheet steel with a tough powder coat paint finish for corrosion resistance. A 100 watt, thermostatically controlled space heater and thermostatic control of the force ventilated cooling system are standard. The operator keypad is mounted on the drive within the enclosure.



ACS550 Package Drive with Disconnect Exterior Views

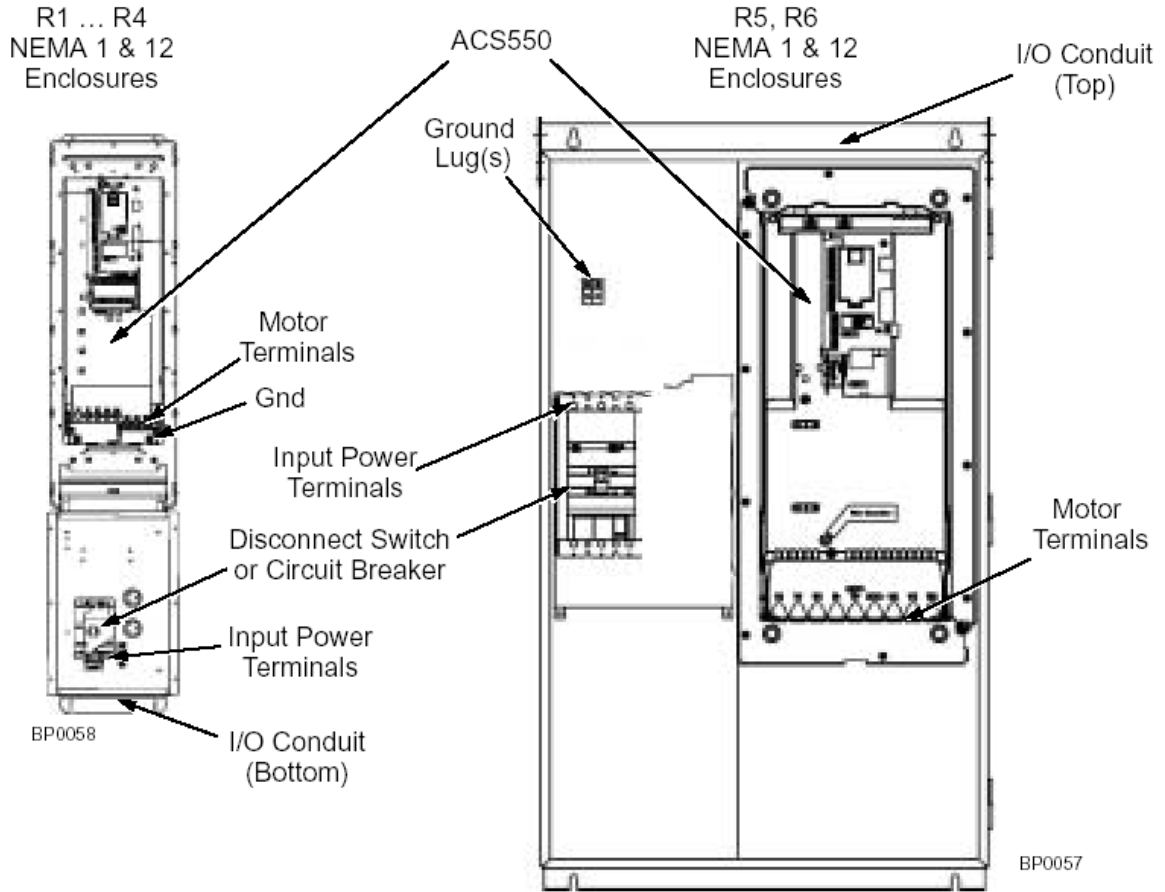
### Cable Connections

The following illustrations show the ACS550 Package Drive with Disconnect cable connection points for the various enclosure styles. The illustrations indicate the location of input and output power connections as well as equipment and motor grounding connection points.

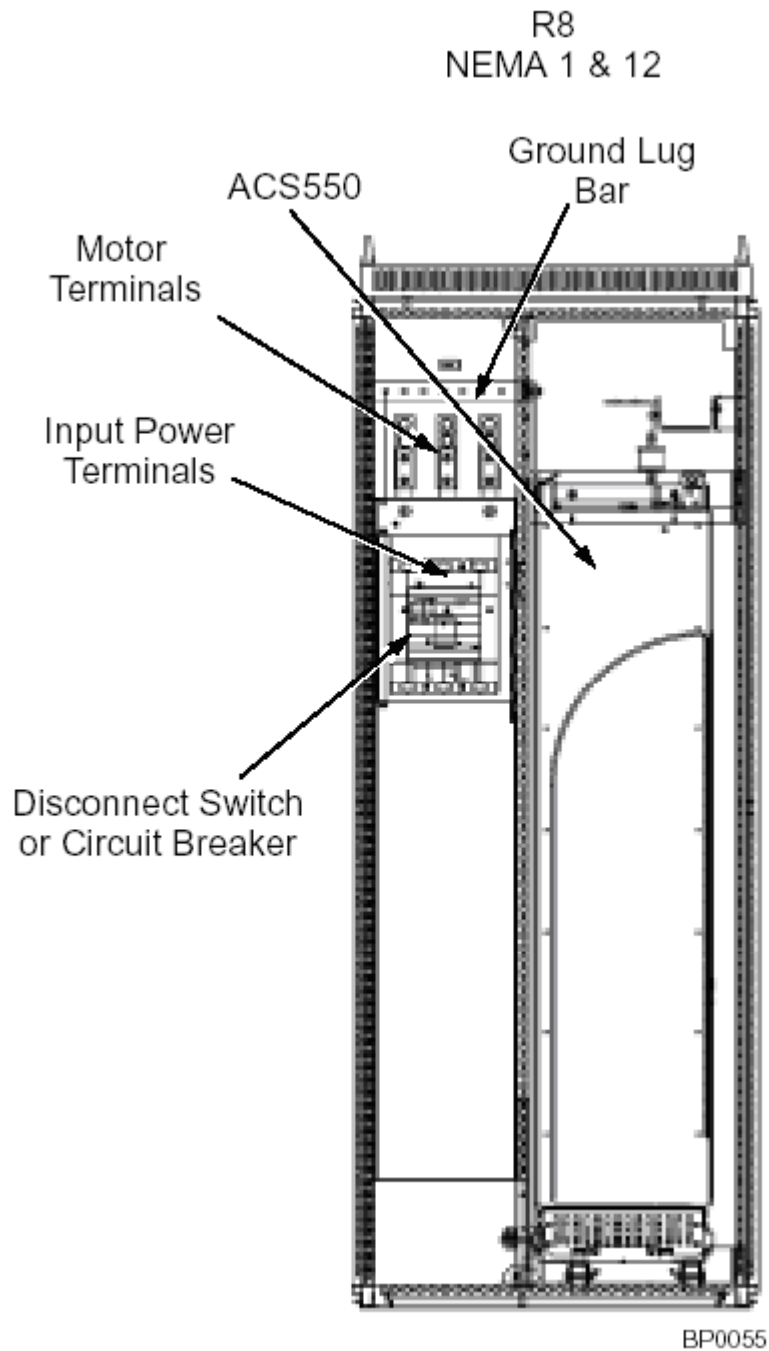
ACS550-PC and PD packages are configured for wiring access from the bottom only on vertical wall mount units and from the top only on UL Type 1 and UL Type 12 standard wall mount and floor mount units. UL Type 3R enclosures are configured for top or bottom access. At least three separate metallic conduits are required, one for input power, one for output power to the motor and one for control signals.

### Terminal Sizes

Power and motor cable terminal sizes are shown in the *Submittal Schedule Details* and in the *Wire Size Capacities of Power Terminals* Table. The information provided is for connections to an input circuit breaker or disconnect switch, a motor terminal block, overload relay and ground lugs. The table also lists torque that should be applied when tightening the connections.



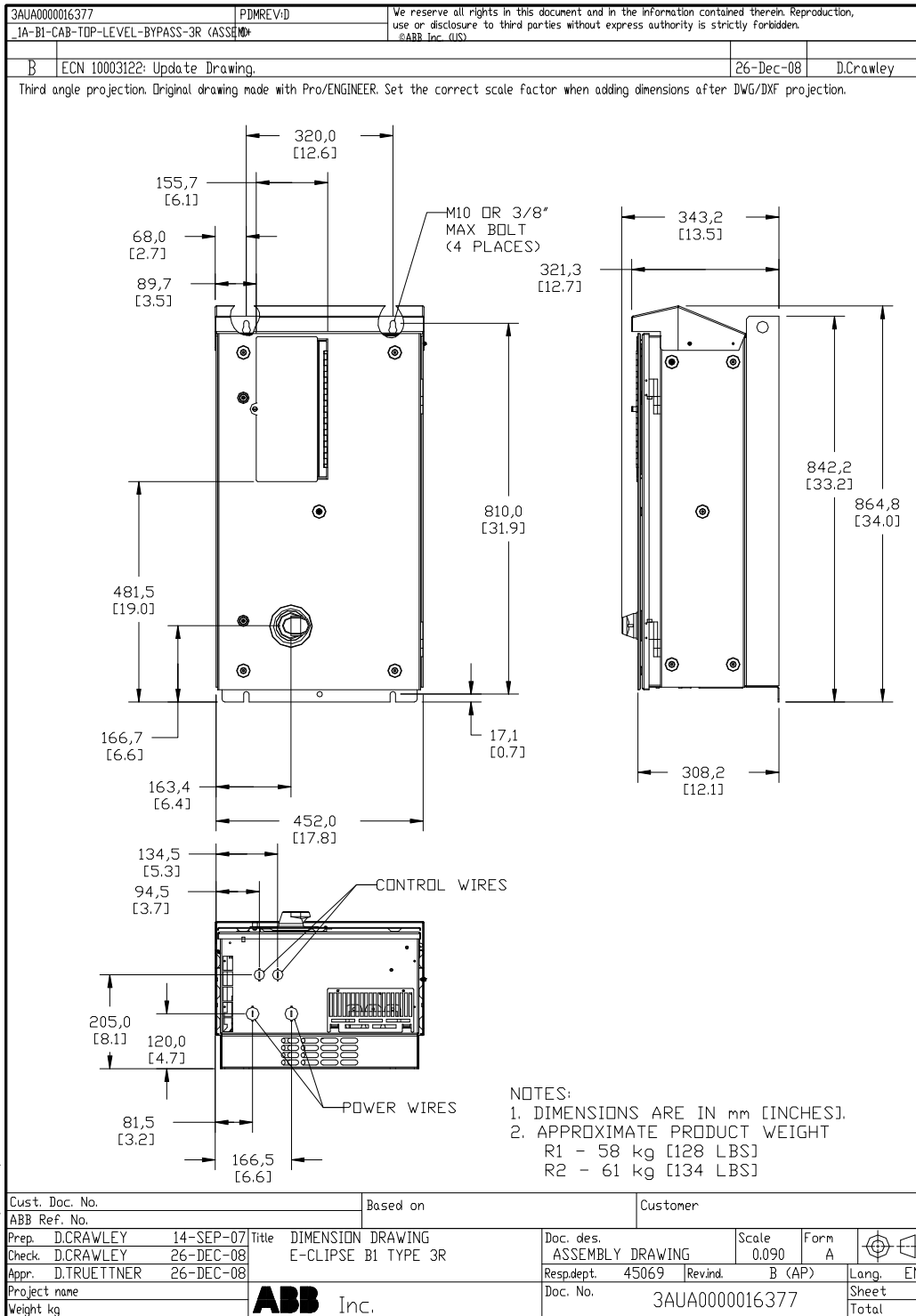
Wall Mount Internal View



Floor Mount Internal View

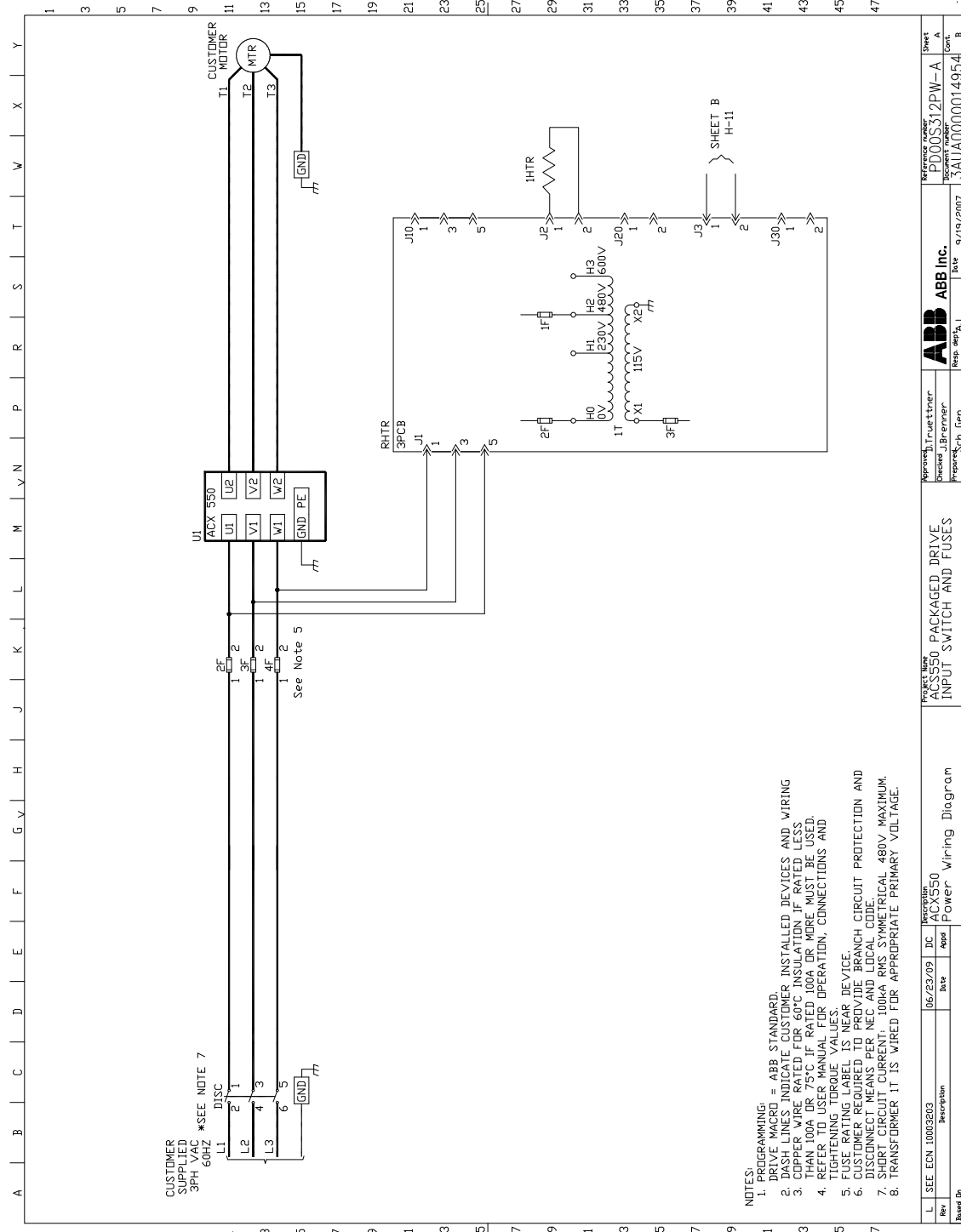


### Dimension Drawing for



F-3BLU0980502-k, rev. 2, 10-21-04

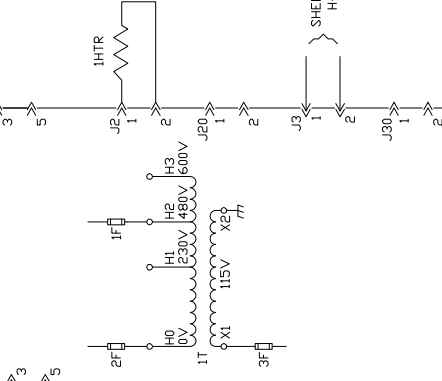
# Power Drawing for



CUSTOMER SUPPLIED 3PH VAC 60HZ \*SEE NOTE 7  
 L1 DISC 2F  
 L2 3F  
 L3 4F  
 1 2 3 4 5 6  
 See Note 5  
 GND PE

U1  
 ACX 550  
 U1 U2 U3  
 V1 V2 V3  
 GND PE

RHTR 3PCB  
 J1 1 3 5

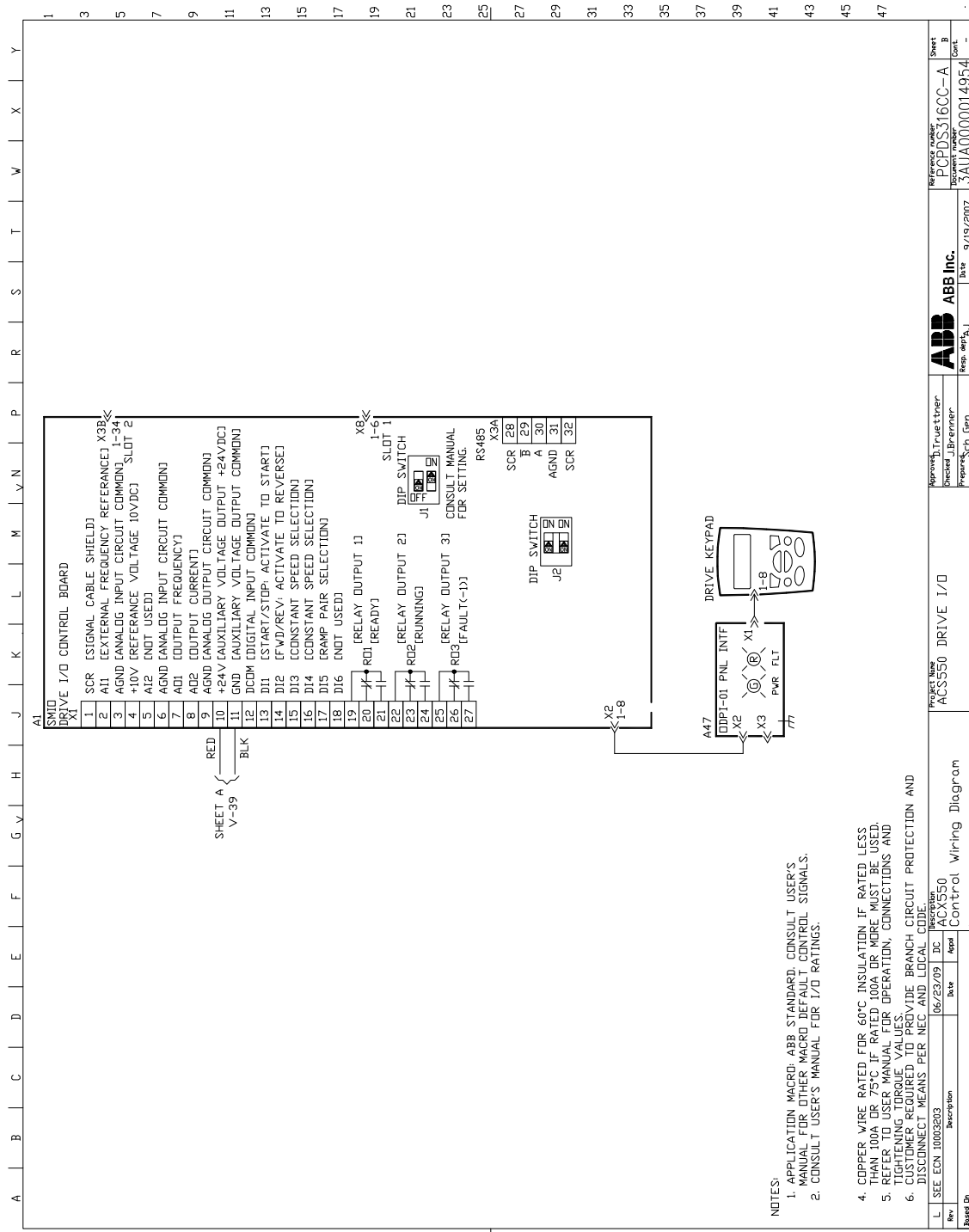


- NOTES:
1. PROGRAMMING = ABB STANDARD.
  2. DRIVE MACRO = ABB STANDARD.
  3. DASH LINES INDICATE CUSTOMER INSTALLED DEVICES AND WIRING.
  4. CUSTOMER WIRING SHOULD BE IDENTIFIED BY A COLOR TAG OR OTHER MEANS.
  5. CHECK FOR PROPER TORQUE VALUES.
  6. REFER TO USER MANUAL FOR OPERATION, CONNECTIONS AND TIGHTENING TORQUE VALUES.
  7. FUSE RATING LABEL IS NEAR DEVICE.
  8. CUSTOMER REQUIRED TO PROVIDE BRANCH DISCONNECT MEANS PER NEC AND LOCAL CODE.
  9. SHORT CIRCUIT CURRENT: 100kA RMS SYMMETRICAL 480V MAXIMUM.
  10. TRANSFORMER IT IS WIRED FOR APPROPRIATE PRIMARY VOLTAGE.

Rev	Description	Date	App'd	DC	06/23/09	DC	06/23/09	DC	06/23/09
L	SEE ECN 10002603								
Project Name	ACX550 PACKAGED DRIVE INPUT SWITCH AND FUSES	Approved by:		Truettner		Reference Number:		PD00S312PW-A	
Sheet		Checked:		J.Brenner		Revision:		3	
Com		Approved:		Frank Sch Gen		Date:		9/19/2007	
Sheet		Responsible:		J.J.		Reference Number:		3AU40000014954	
A		Responsible:		J.J.		Date:		9/19/2007	
B		Responsible:		J.J.		Date:		9/19/2007	

F:\3DU0989020-M-RV-0-8-21-03 We reserve all rights in this document and the information contained therein. Reproduction, use, or disclosure to third parties without express written authority is strictly prohibited. ABB Automation Inc. (US)

# Connection Drawing for



- NOTES:**
1. APPLICATION ALSO ABB STANDARD. CONSULT USER'S MANUAL FOR OTHER MICRO DIFFERENTIAL CONTROL SIGNALS.
  2. CONSULT USER'S MANUAL FOR I/O RATINGS.

4. COPPER WIRE RATED FOR 60°C INSULATION IF RATED LESS THAN 100A OR 75°C IF RATED 100A OR MORE MUST BE USED.
5. REFER USER MANUAL FOR OPERATION, CONNECTIONS AND TIGHTENING TORQUE VALUES.
6. CUSTOMER REQUIRED TO PROVIDE BRANCH CIRCUIT PROTECTION AND DISCONNECT MEANS PER NEC AND LOCAL CODE.

Rev	Description	Date	App'd
L	SEE EON 10003203	06/23/09	DC
Project Name	ACS550 DRIVE I/O	Project No.	3AUA0000014954
Project No.	ACS550 DRIVE I/O	Sheet	B
Control Wiring Diagram	ABB Inc.	Sheet	POPDS16CC-A
Responsible	Responsible	Date	9/19/2007
Checked	Checked	Date	9/19/2007
Approved	Approved	Date	9/19/2007

F-38AUA0980502-M, rev. 0-8-21-03  
We reserve all rights in this document and the information contained therein. Reproduction, use, or disclosure to third parties without express written authority is strictly prohibited.

# Engineering Data and Ratings Tables

## Fuses

Drive input fuses are recommended to disconnect the drive from power in the event that a component fails in the drive's power circuitry. Recommended drive input fuse specifications are listed in the *Submittal Schedule Details* and in the *Fuse Ratings* Table. Fuse rating information is provided for customer reference.

Item	Catalog Number	Drive Input Fuse Ratings	
		Amps (600V)	Bussmann Type
1	ACS550-PD-08A8-4+B058	15	KTK-R-15
2	ACS550-PD-012A-4+B058	15	KTK-R-15
3	ACS550-PD-023A-4+B058	30	KTK-R-30

## Terminal Sizes / Cable Connection Requirements

Power and motor cable terminal sizes and connection requirements are shown in the *Submittal Schedule Details* and in the *Terminal Sizes / Cable Connection Requirements* Table. The information provided below is for connections to input power and motor cables. These connections may be made to an input circuit breaker or disconnect switch, a motor terminal block, overload relay, and/or directly to bus bars and ground lugs. The table also lists torque that should be applied when tightening terminals and spacing requirements where multiple mounting holes are provided in the bus bar.

Item	Catalog Number	Circuit Breaker	Disconnect Switch	Terminal Block	Overload Relay	Ground Lug
1	ACS550-PD-08A8-4+B058	N/A N/A	#10 7 in-lbs	#10 12 in-lbs	N/A N/A	#10 35 in-lbs
2	ACS550-PD-012A-4+B058	N/A N/A	#10 7 in-lbs	#10 12 in-lbs	N/A N/A	#10 35 in-lbs
3	ACS550-PD-023A-4+B058	N/A N/A	#8 7 in-lbs	#6 12 in-lbs	N/A N/A	#6 35 in-lbs

## Heat Dissipation Requirements

The cooling air entering the drive must be clean and free from corrosive materials. The *Submittal Schedule Details* and the *Heat Dissipation Requirements* table below give the heat dissipated into the hot air exhausted from the drives. If the drives are installed in a confined space, the heat must be removed from the area by ventilation or air conditioning equipment.

Item	Catalog Number	Power Losses		Airflow	
		Watts	BTU/Hr	CFM	CM/Hr
1	ACS550-PD-08A8-4+B058	127	433	26	44
2	ACS550-PD-012A-4+B058	172	587	26	44
3	ACS550-PD-023A-4+B058	337	1150	52	88

## Dimensions and Weights

Dimensions and weights of the drives provided are given in the *Submittal Schedule Details* and in the *Dimensions and Weights* Table. The table also lists the applicable dimension drawings that include additional detail. Dimension drawings may be provided in the back of this submittal.

Item	Catalog Number	Height mm / in	Width mm / in	Depth mm / in	Weight kg / lbs	Dimension Drawing
1	ACS550-PD-08A8-4+B058	864 / 34	452 / 17.8	343 / 13.5	58.1 / 128	3AUA0000016377 Sheet 1
2	ACS550-PD-012A-4+B058	864 / 34	452 / 17.8	343 / 13.5	58.1 / 128	3AUA0000016377 Sheet 1
3	ACS550-PD-023A-4+B058	864 / 34	452 / 17.8	343 / 13.5	60.8 / 134	3AUA0000016377 Sheet 1

## Schematics and Wire Diagrams

Detailed wiring diagrams and schematics may be included for the products covered in this submittal. Please reference the following ABB part numbers for the drawings included with this submittal:

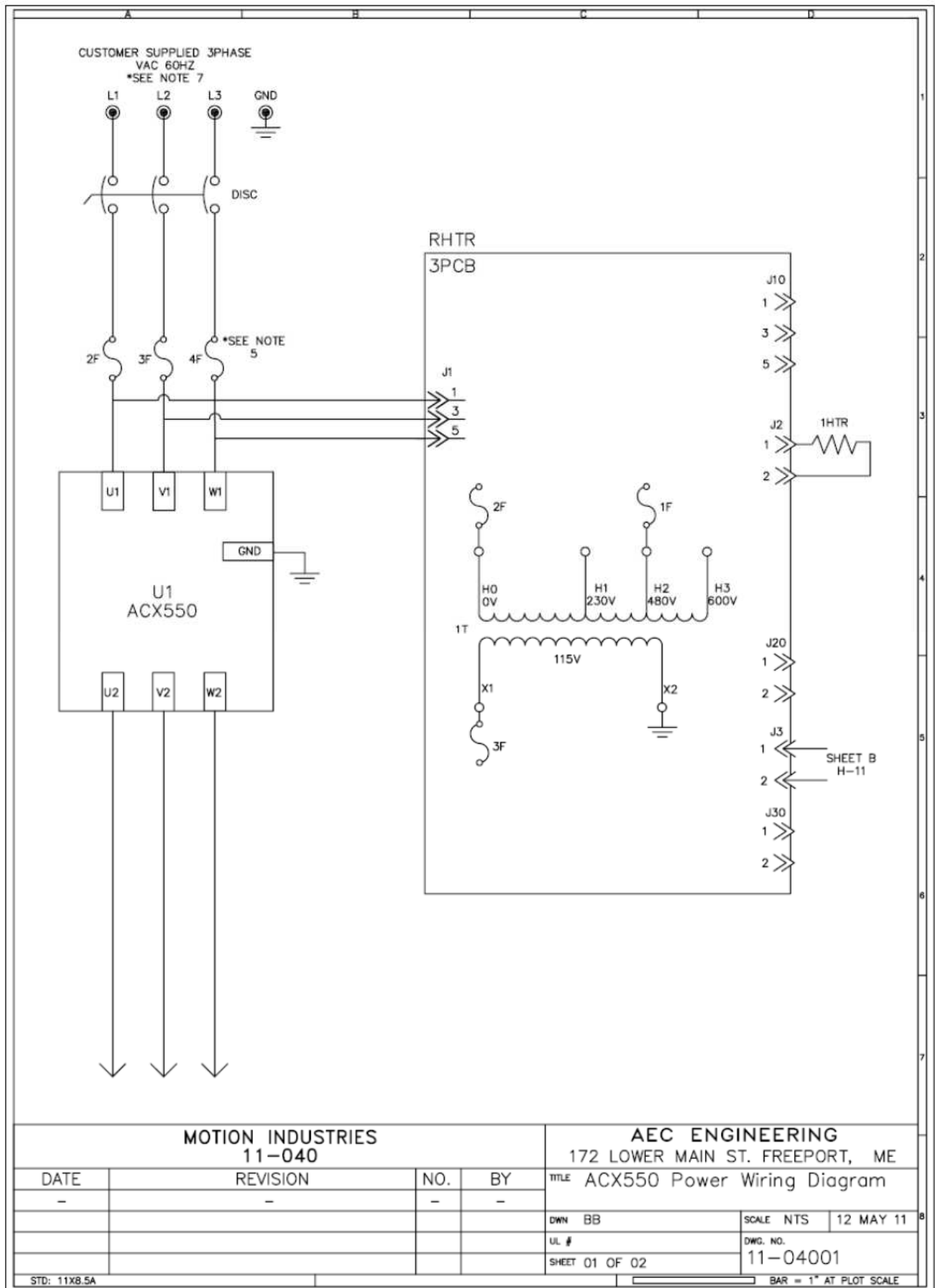
Item	Catalog Number	Power Wiring	Connection Diagram	Dimension Detail
1	ACS550-PD-08A8-4+B058	PD00S312PW-A	PCPDS316CC-A	3AUA0000016377 Sheet 1
2	ACS550-PD-012A-4+B058	PD00S312PW-A	PCPDS316CC-A	3AUA0000016377 Sheet 1
3	ACS550-PD-023A-4+B058	PD00S312PW-A	PCPDS316CC-A	3AUA0000016377 Sheet 1

## Product short Circuit Current Rating

Short circuit ratings shown below are as show on the device rating label.

Item	Catalog Number	Short Circuit Current Rating
1	ACS550-PD-08A8-4+B058	100 kA
2	ACS550-PD-012A-4+B058	100 kA
3	ACS550-PD-023A-4+B058	100 kA

Dual motor operation (page 1 of 2)



<b>MOTION INDUSTRIES</b> 11-040				<b>AEC ENGINEERING</b> 172 LOWER MAIN ST. FREEPORT, ME			
DATE	REVISION	NO.	BY	TITLE ACX550 Power Wiring Diagram			
-	-	-	-	DWN BB	SCALE NTS	12 MAY 11	
				UL #	DWG. NO. 11-04001		
				SHEET 01 OF 02			
STD: 11XB.5A				BAR = 1" AT PLOT SCALE			

Dual motor operation (page 2 of 2)

