

VARIABLE SPEED DRIVE SIZING CHECKLIST

JOB:			PART NUMBER:		
CUSTOMER NAME:			DATE:		
CUSTOMER ADDRESS:			APPLICATION:		
			PO #:		
CONTACT NAME:			PREPARED BY:		
STANDARD FEATURES / CAPABILITIES					
ENCLOSURE RATING			INDOOR		OUTDOOR
<input type="checkbox"/> IP20 CHASSIS	<input type="checkbox"/> TYPE 1	<input type="checkbox"/> TYPE 12	<input type="checkbox"/> TYPE 3R	<input type="checkbox"/> TYPE 4X	
SYSTEM CONTROL					
<input type="checkbox"/> Pressure		<input type="checkbox"/> Speed	<input type="checkbox"/> Level	<input type="checkbox"/> Flow	
INPUT/OUTPUT OPTIONS - QUANTITY REQUIRED					
ANALOG INPUT		DIGITAL INPUT		ANALOG OUTPUT	
BMS PROTOCOL					
<input type="checkbox"/> MODBUS RTU	<input type="checkbox"/> BACNET MSTP	<input type="checkbox"/> PROFIBUS	<input type="checkbox"/> DEVICENET	<input type="checkbox"/> OTHER	
<input type="checkbox"/> NOT REQUIRED				Specify Protocol (OTHER):	
SITE SPECIFIC DATA:					
MEASURED LINE TO LINE VOLTAGE		*V (Average)	**V (IMBALANCE) %	MEASURED LINE TO GROUND VOLTAGE	
L1 - L2			L1 - L2		L1 - Ground
L2 - L3			L2 - L3		L2 - Ground
L1 - L3			L1 - L3		L3 - Ground
VOLTAGE CALCULATIONS:					
$* V (\text{Average}) = \frac{(V_{L1-L2} + V_{L1-L3} + V_{L2-L3})}{3}$					
$** V (\text{Imbalance}) = \left(\frac{\text{Reading with maximum deviation from Vavg}}{V_{avg}} \right) - 1 \times 100$					
MOTOR INFORMATION:					
SPECIFIED INPUT PHASE/VOLTAGE			NOMINAL MOTOR HP:		
<input type="checkbox"/> 1PH / 208 - 230 V	<input type="checkbox"/> < 0.75	<input type="checkbox"/> 7.5	<input type="checkbox"/> 40		
<input type="checkbox"/> 3PH / 208 - 230 V	<input type="checkbox"/> 1	<input type="checkbox"/> 10	<input type="checkbox"/> 50		
<input type="checkbox"/> 1PH / 380 - 460 V	<input type="checkbox"/> 1.5	<input type="checkbox"/> 15	<input type="checkbox"/> 60		
<input type="checkbox"/> 3PH / 380 - 460 V	<input type="checkbox"/> 2	<input type="checkbox"/> 20	<input type="checkbox"/> 75		
<input type="checkbox"/> 3PH / 575 V	<input type="checkbox"/> 3	<input type="checkbox"/> 25	<input type="checkbox"/> 100		
<input type="checkbox"/> 1PH / 115 V	<input type="checkbox"/> 5	<input type="checkbox"/> 30	<input type="checkbox"/> 125		
MOTOR AMPERAGE (SFA / FLA)	/		AMBIENT TEMPERATURE		
LOAD WIRE LENGTH					
<input type="checkbox"/> < 50 Feet	<input type="checkbox"/> 300 Feet Max.	<input type="checkbox"/> 1000 Feet Max.	<input type="checkbox"/> ≤ 1500 Feet	<input type="checkbox"/> > 1500 Feet	
MOTOR PROTECTION - Over 50 feet will require a reactor or filter to protect the motor.					
<input type="checkbox"/> No Filter	<input type="checkbox"/> Load Reactor	<input type="checkbox"/> DV/DT Filter	<input type="checkbox"/> Sine Wave Filter		

CONTROLS TECHNICAL HOTLINE:
866-673-0445



The type of transformer and the connection configuration feeding a drive plays an important role in its performance and safety. The following is a brief description of some of the more common configurations and a discussion of their virtues and shortcomings. Always ask what type of power system the site has before sizing the drive.

ELECTRICAL POWER SUPPLY VARIATIONS

Nominal Voltage	V Phase to Gnd			Type of Transformer	NOTES
	L1 to Gnd	L2 to Gnd	L3 to Gnd		
208V	120V			Wye	Most common. Provides rebalancing of unbalanced voltage with a 30° phase shift.
480V	277V				
575V	332V				
240V	Various			Floating Delta	The phases have no true reference to ground
480V					
575V					
240V	0V	240V	240V	Corner Ground Delta	One phase connected to ground. Other 2 phases = line voltage
480V	0V	480V	480V		
240V	208V	120V	120V	Delta with Wild Leg	One phase center tapped to derive a different voltage
480V	415V	240V	240V		
ALL 3 PHASE	Look for 2 xformer cans on the power pole!			Open Delta	Generating 3 phase power from just 2 phases of a transformer

DRIVE MODIFICATIONS BASED UPON POWER SUPPLY

Wye	SPD	Check Line to Ground voltages are within imbalance (3%).
	CPC	Install EMC filter screws EM1/EM3 or F1/F2 depending upon drive frame size.
	IPC	Check Line to Ground voltages are within imbalance (3%).
Floating Delta	SPD	Follow procedure: Disconnecting EMC Filter and MOV's per IM213.
	CPC	Remove the line to ground EMC filter components by removing EM1 and EM3 or F1 and F2. Refer to "IT systems" in the table below.
	IPC	Set Parameter 14-50 RFI FILTER to [Off].
Corner Grounded Delta	SPD	Follow procedure: Disconnecting EMC Filter and MOV's per IM213.
	CPC	For R4 or N4 frame size, remove EM3. Leave EM1 connected. For R5/N5 and R6/N6 leave the screws in F1/F2 installed (Refer to the "Corner grounded TN systems" column in the table below).
	IPC	Set Parameter 14-50 RFI FILTER to [Off].
Delta with Wild Leg	SPD	Follow procedure: Disconnecting EMC Filter and MOV's per IM213.
	CPC	Refer to the "Corner grounded TN systems" column in the table below.
	IPC	Set Parameter 14-50 RFI FILTER to [Off].
Open Delta	SPD	Use a derated (oversized) three phase drive wired for single phase input supply.
	CPC	Drive output amperage to be derated by 50% to accommodate the single phase input.
	IPC	Use dedicated single phase drive wired with the balanced input legs.

Table to be used for CPC ONLY	Frame Sizes	Screw	Symmetrically Grounded TN Systems (TN-S Systems)	Corner Grounded TN Systems	IT Systems (ungrounded or high-resistance grounded [$> 30 \text{ ohm}$])
	R1...R3	EM1	x	x	•
		EM3 ¹	x	•	•
	R4	EM1	x	x	–
		EM3 ¹	x	–	–
	R5...R6	F1	x	x	–
		F2	x	x	–
x = Install the screw. (EMC filter will be connected) • = Replace the screw with the provided polyamide screw. (EMC filter will be connected) – = Remove the screw. (EMC filter will be connected) 1 = ACS550-U1 drives are shipped with screw EM3 already removed.					