

Quick Guide

Motor Nameplate

Motor Size (HP)	
Nameplate FLA (A)	
Motor Voltage (V)	
Motor Nominal Speed	
Motor Synchronous Speed	
Motor Frequency (Hz)	

Pump Sheave Data

Motor Sheave Size	
Pump Sheave Size	
Gearbox Reduction	

VFD Data

Model	
Serial Number	

Protection

Desired Limiting Torque Level (ft-lb)	
Desired Shutdown Torque Level (ft-lb)	

Calculations:

The following calculations are used in the parameter settings for PCP applications on the ACS580.

C1: Motor Torque

$\frac{\text{Motor Size HP ()} \times 5252}{\text{Motor Nominal Speed ()}}$	_____ Ft-Lbs.
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C2: Rod Speed @ 60Hz

$\frac{\text{Motor Sheave ()} \times \text{Motor Synchronous RPM ()}}{\text{Pump Sheave ()} \times \text{Gearbox Reduction ()}}$	_____ Rod RPM
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C3: Total Turndown Ratio

$\frac{\text{Motor Synchronous RPM ()}}{\text{C2: Rod Speed @ 60Hz ()}}$	_____
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C4: System Torque

$\text{C1: Motor Torque ()} \times \text{C3: Total Turndown Ratio ()}$	_____ Ft-Lbs
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C5: Maximum Torque (%)

$\frac{\text{Desired Limiting Torque ()} \times 100}{\text{C4: System Torque ()}}$	_____ %
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C6: Shutdown Torque (%)

$\frac{\text{Desired Shutdown Torque ()} \times 100}{\text{C4: System Torque ()}}$	_____ %
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ACS580 PROGRAMMING:

Group 95: HW Configuration

95.20 HW OPTIONS WORD 1	BIT 0 = 1	SET BIT FOR 60HZ SYSTEMS
	BIT 13 = 1	SET BIT IF A DV/DT FILTER IS USED

**SET GROUP 95 HW CONFIGURATION & CYCLE POWER TO THE DRIVE. THEN PROCEED WITH REMAINING PARAMETERS*

Group 96: System

96.01 LANGUAGE	= ENGLISH	
96.04 MACRO SELECT	= ABB STANDARD	
96.16 UNIT SELECTION	BIT 0 = 1	POWER UNIT = HORSEPOWER
	BIT 2 = 1	TEMPERATURE = FAHRENHEIT
	BIT 4 = 1	TORQUE = LBFT

Group 99: Motor Data

99.03: TYPE	= ASYNCHRONOUS	
99.04: CONTROL MODE	= VECTOR	VECTOR CONTROL
99.06: NOMINAL CURRENT		FROM MOTOR NAMEPLATE
99.07: NOMINAL VOLTAGE		FROM MOTOR NAMEPLATE
99.08: NOMINAL FREQUENCY		FROM MOTOR NAMEPLATE
99.09: NOMINAL SPEED		FROM MOTOR NAMEPLATE
99.10: NOMINAL POWER		FROM MOTOR NAMEPLATE

Group 10: Relay Outputs

10.24: RO1 SOURCE	= SUPERVISOR 1	OUTPUT WHICH FLAGS SHUTDOWN-TORQUE
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Group 12: Standard AI

12.30: AI1 SCALED MAX	=	ENTER MOTOR SYNCHRONOUS SPEED
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Group 20: Start/Stop/Dir

20.01: EXT1 COMMANDS	= IN1 START	START SIGNAL
20.02: EXT1 START TRIGGER TYPE	= LEVEL	
20.03: EXT 1 SOURCE	= DI1	
20.04: EXT 2 SOURCE	= ALWAYS OFF	
20.11: RUN ENABLE STOP MODE	= COAST	
20.12: RUN ENABLE 1 SOURCE	= DI4	TIMER CONTROL INPUT
20.21 DIRECTION	= FORWARD	

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Group 21: Start/Stop Mode

21.01: START MODE	= AUTOMATIC	
21.03: STOP MODE	= COAST	

Group 22: Speed Reference Selection

22.11: EXT1 SPEED REF1	= AI1	
22.22: CONSTANT SPEED SEL1	= ALWAYS OFF	
22.23: CONSTANT SPEED SEL2	= ALWAYS OFF	

Group 23: Speed Reference Ramp

23.11 RAMP SET SELECTION	= ACC/DEC TIME 1	
23.12 ACCELERATION TIME 1	= 20	SECONDS
23.13 DECELERATION TIME 1	= 20	SECONDS

Group 30: Limits

30.11: MINIMUM SPEED	=	MOTOR/INSTALLATION DEPENDANT
30.12: MAXIMUM SPEED	=	ENTER MOTOR SYNCHRONOUS SPEED (IE: 1200)
30.17: MAXIMUM CURRENT	=	TYPICALLY MOTOR FLA OR MOTOR FLA X SF
30.19: MINIMUM TORQUE	= 0	
30.20 MAXIMUM TORQUE	=	ENTER CALCULATED VALUE FROM C5

Group 31: Fault Functions

31.01: EVENT 1 SOURCE	= DI2	SETS DI2 FOR PRECSO
31.03: EVENT 2 SOURCE	= DI6	INITIATES OVERTORQUE SHUTDOWN
31.12: AUTORESET SELECTIONS		SELECTABLE - CUSTOMER TO ADVISE
31.14: NUMBER OF TRIALS	= 3	
31.15: TOTAL TRIALS TIME	= 180	
31.16: DELAY TIME	= 20	
31.24: STALL FUNCTION	= FAULT	
31.25: STALL CURRENT LIMIT	=	EQUATION C5
31.26: STALL LIMIT SPEED	= 400	ENTER BASED ON MOTOR SPEC
31.28: STALL TIME	= 300	SECONDS

Group 32: Supervision

32.05 SUPERVISOR 1 FUNCTION	= HIGH	
32.06 SUPERVISOR 1 ACTION	= FAULT	
32.07 SUPERVISOR SIGNAL	= TORQUE	
32.10 SUPERVISOR HIGH	=	EQUATION C6

NOTE - THE PARAMETERS LISTED IN THIS FORM ARE BASED ON A STANDARD SFC ENERGY PCP SYSTEM. CUSTOM BUILT PANELS MAY HAVE VARIATIONS IN CONTROL & PROGRAMMING. PLEASE REFER TO THE ACS580 USER MANUAL FOR FULL PARAMETER LISTING. REFER TO AS-BUILT DRAWINGS FOR I/O CONNECTIONS.

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Display Panel

PRESS THE LEFT SOFTKEY FOR OPTIONS

ARROW DOWN TO EDIT HOME VIEW

THE VIEW THAT IS FLASHING CAN BE EDITED BY PRESSING THE RIGHT SOFTKEY

PUMP SPEED

DISPLAY SLOT-----

PARAMETER: MOTOR SPEED USED

DISPLAY STYLE: NUMERIC

DISPLAY DECIMALS: 0

DISPLAY NAME: "PUMP SPEED"

MIN: 0.00 RPM

MAX: ENTER THE SYNCHRONOUS MOTOR SPEED (IE: 1200 RPM)

✓ SCALE VALUE RANGE

DISPLAY MIN AS: 0

DISPLAY MAX AS: (MAXIMUM MOTOR SPEED / C3 TURNDOWN RATIO)

DISPLAY UNIT: "PRPM"

PRESS DONE ONCE COMPLETE TO SAVE SETTINGS

ROD TORQUE

DISPLAY SLOT-----

PARAMETER: MOTOR TORQUE

DISPLAY STYLE: NUMERIC

DISPLAY DECIMALS: 1

DISPLAY NAME: "ROD TORQUE"

MIN: 0.00 %

MAX: 200 %

✓ SCALE VALUE RANGE

DISPLAY MIN AS: 0

DISPLAY MAX AS: (2X) C4 SYSTEM TORQUE

DISPLAY UNIT: "LBFT"

PRESS DONE ONCE COMPLETE TO SAVE SETTINGS

PRESS DONE AGAIN TO RETURN TO MAIN VIEW

ADDITIONAL RESOURCES:

[ABB ACS580 PRIMARY FIRMWARE MANUAL](#)

[ABB ACS580 HARDWARE MANUAL](#)

[SFC ENERGY SUPPORT PORTAL](#)