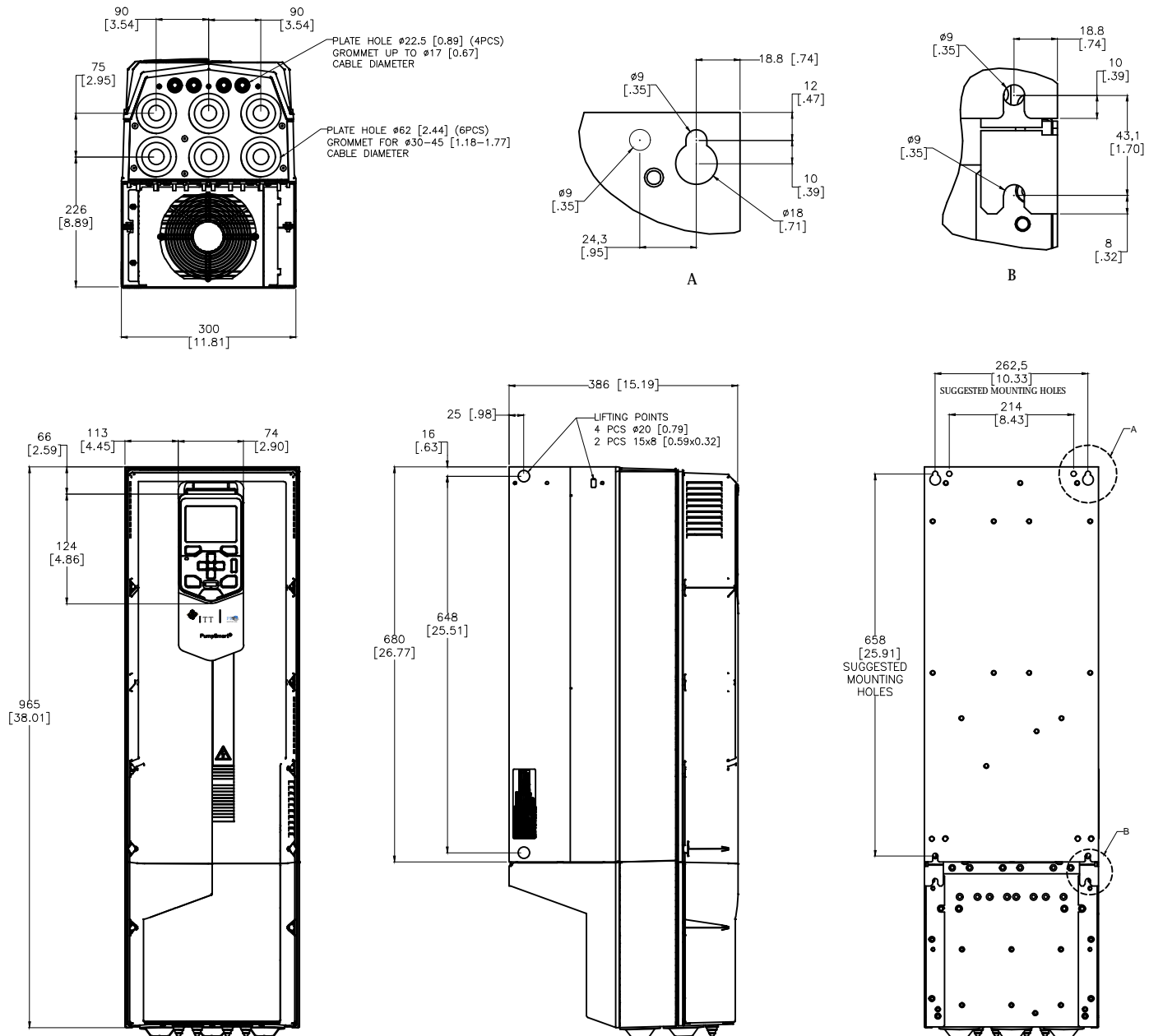


PumpSmart PS220 pump and motor Control System

The PumpSmart PS220 is a pump and motor control system that provides integral starting, right-sizing, pump protection and process control for all pumping applications. The PumpSmart PS220 is based upon the ABB ACS880-01 variable frequency drive platform. PumpSmart Control Solutions has worked with ABB to incorporate proprietary pump protection, process control and configuration algorithms into the drive to make it more suitable for pumping applications



DRIVE DIMENSIONS

FRAME	HEIGHT mm [Inches]	WIDTH mm [Inches]	DEPTH mm [Inches]	WEIGHT Kg [lbs]
R8	965 [38.01]	300 [11.81]	386 [15.21]	68 [150]

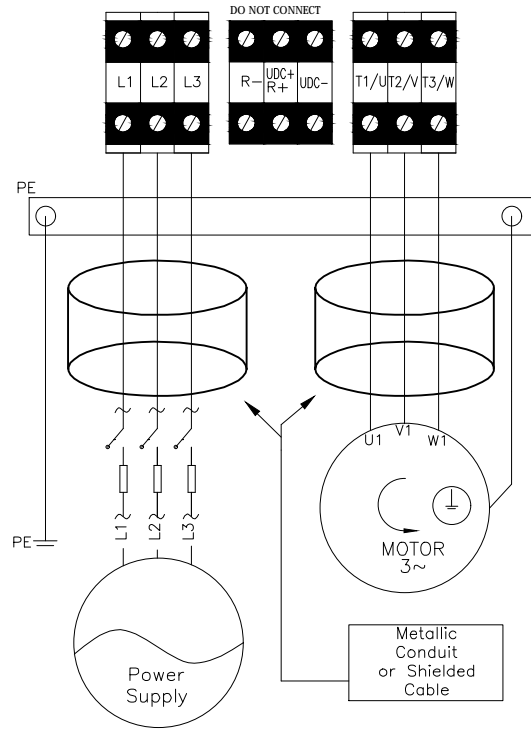
\* DIMENSIONS NOT FOR CONSTRUCTION

### Drive Ratings

ITT P/N	ABB P/N	Input Voltage VAC	Power <sup>1</sup>		Rated Current <sup>2</sup> (A)	Heat Dissipation		Air Flow		Frame	Enclosure Rating	Recommended main Fuses	
			HP	kW		Watts	BTU/hr	m <sup>3</sup> /hr	CFM			UL Type(A) Bussmann	IEC Type Bussmann
K03550A16	ACS880-01-274A-2	208-240	100	75	260	2100	7165	550	324	R8	NEMA 1 IP21	JJS-400	170M5810
K03561A20	ACS880-01-246A-3	380-415	NA	132	234	3300	11260					NA	170M5812
K03561A21	ACS880-01-293A-3	380-415	NA	160	278	3900	13307					NA	170M6812D
K03552A16	ACS880-01-240A-5	380-500	200	132	240	3300	11260					JJS-350	170M5811
K03554A14	ACS880-01-142A-7	525-690	150	110	144	3300	11260					JJS-250	170M5810
K03554A15	ACS880-01-174A-7	525-690	200	132	180	3900	13307					JJS-300	170M5810

1- Nominal Power Rating at listed voltage rating  
2- Continuous base current with 10% overload for 1 min/5 minutes

### Power Cabling Schematic



General Notes:  
1-360 Grounded terminations are required  
2-Ultra-rapid fuses are required to protect drive  
Operating time must be less than 0.5 sec.  
Refer to Technical Data section for details

Frame Size	Terminals T1/U, T2/V, T3/W, L1, L2, L3				Earthing PE Terminal			
	Wire Size AWG (mm <sup>2</sup> )	Screw	Torque		Max. Wire Size AWG (mm <sup>2</sup> )	Screw	Torque	
			N-m	Lb-ft			N-m	Lb-ft
R8	2 x (1/0...300 MCM) (2 x (50...150))	M10	40	29.5	2 x 350 MCM (2 x 185)	M10	9.8	7.2

**PumpSmart® PS220**

Drive Hardware: ABB ACS880-01

**CERTIFICATIONS**

600VAC and Below  
UL Listed  
Canadian UL Listed

**INPUT POWER**

Voltage.....208..690 VAC 3 Phase  $\pm 10\%$   
Overload.....110% for 1min/5 min,  
140-150% for 10 sec at startup  
Frequency.....48..63Hz  
Fundamental Power..... $\text{Cos}\phi_1=0.98$  (fundamental)  
Factor( $\text{Cos}\phi_1$ ) ..... $\text{Cos}\phi_1=0.93..95$  (total)  
Efficiency.....98% (at nominal power)

**MOTOR CONNECTION**

Voltage.....0 to U1, 3-Phase Symmetrical,  
Umax at the field weakening point  
Frequency.....0..500Hz  
Field Weakening Point.....5..500Hz  
Switching Frequency .....2.7KHz  
(average)  
Short Circuit Withstand Rating.....  
.....100,000AIC(UL) R1-R9  
when protected by fuses given  
in the hardware manual.  
Connection .....U2, V2, W2

**ENVIRONMENTAL LIMITS**

Enclosures.....NEMA 1/IP21  
Temperature.....5..131°F(-15to55°C)Standard  
104..131°F(40-50C) with  
de-rating (1%/1C)  
Humidity.....5..95% Relative Humidity  
Altitude.....0..3300 Ft(0-1000M) Standard  
3300..13,123Ft (1000..4000M) with  
de-rating (1%/100M)  
Vibration.....Max.1mm(0.04 in.) 5-13.2 Hz  
Max.7 m/s<sup>2</sup> (23ft/s<sup>2</sup>) 13.2-100  
HZ,Sinusoidal  
Shock, Free Fall.....Not Allowed

**ANALOG INPUTS**

Two (2) Programmable Differential Inputs  
Two (2) Current or Voltage Signals.....0(4) to 20 mA, Input Resistance  
RI=> 100 ohms or  
-10Vdc /0(2) to+10Vdc,  
Input Resistance RI=> 200 Kohms  
Common Mode Voltage.....+/-15Vdc,max.  
Common Mode Rejection Ratio.....> 60dB at 50Hz  
Resolution.....0.025% (12bit) (11 bit+Sign bit)  
Accuracy.....+/-0.5% of full Scale Range  
Input Updating Time.....1 ms (Primary Control Program)  
Optional Isolation.....Available through optional external  
module

**ANALOG OUTPUTS**

Two (2) Programmable Current Outputs  
Signal Level.....0(4) to 20mA  
Resolution.....0.025% (12bit) (11 bit+ Sign bit)  
Accuracy.....+/-1% of Full Scale Range  
Maximum Load Impedance...500 ohms  
Output Updating Time.....1 ms (primary Control Program)  
Frequency Range.....0-300Hz

**DIGITAL INPUTS**

Six(6) Programmable Digital Inputs(Common Grounds), plus One(1) Start Interlock  
Isolation.....Isolated  
Isolation Test Voltage.....500VAC, 1 minute  
Input Type.....NPN/PNP (DI1....D15), NPN (D16)  
Signal Level.....24Vdc  
Rin.....2.0 kOhms  
Logical switch thresholds.....< 5Vdc at "0", > 15Vdc at "1"  
Input Current.....15mA, Digital Input 1 to Digital Input  
5, 5mA Digital Input 6  
Filtering Time Constant.....Hardware Filter .04ms.  
Input Updating Time.....Digital Filtering up to 8ms.(Primary Control  
Program)  
Internal 24Vdc Supply for Digital Inputs  
Voltage.....24Vdc  
Maximum Current.....200mA  
Connector.....XD24.2 and XD24.4  
Protection.....Short Circuit Proof  
An external 24 Vdc supply may be used instead of the Internal supply

**DIGITAL INPUTS/OUTPUTS**

Two(2) programmable Digital Inputs/Outputs  
Isolation.....Isolated  
Input Configuration.....DIO1 frequency input(0...16KHz  
with 4 microsecond hardware filtering)  
Output Configuration.....DIO2 frequency output(0...16KHz  
with 4 microsecond hardware filtering)  
Signal Level.....24Vdc  
Rin.....2.0Kohm  
Logical Input switch thresholds...< 5Vdc at "0", > 15Vdc at "1"  
Filtering Time Constant.....0.25ms  
As output.....Total output current from  
+ 24VD is limited to 200ma.

**RELAY OUTPUTS**

Three Programmable Relay Outputs  
Switching Capacity.....2 A at 30Vdc or 250VAC  
Maximum Continuous Current.....IC= 2 Amps RMS  
Protection .....Varistors (250V)  
Output Updating Time.....1 ms (Primary Control  
Program)

**REFERENCE POWER SUPPLY**

Voltage.....+ 10Vdc,0,-10Vdc+/-0.5% at  
25°C (77°F)  
Maximum Load.....10mA  
Applicable Potentiometer..1 k-ohm to 10 k-ohm

**FIELD BUS**

Communication ..... Modbus, Profibus DP  
Modules..... Ethernet, DeviceNet