

# IPS INTELLIGENT PUMP STARTER

50/60 Hz, 1Ø & 3Ø, 120~600 VAC, 1/3 - 300 HP

Integrated electronic pump protection overload

Power metering and data logging options

## More Protection, Less Nuisance Trips

### Integrated Tru-power™ electronic motor and pump protection

- Eliminates need for costly pump protection relays
- Dry pump detection using power (nuisance trip-free); automatic restart for well recovery mode
- Wide range class 5-30 electronic overload eliminates call backs due to miss-sized heaters
- Advanced protective features include over/under voltage, phase loss, phase unbalance, stalled/locked rotor, cycle fault, and UL 1053 ground fault
- Tru-power™ sensing protects pumps from dry pump, dead head, runout, and jammed impeller conditions - keeping you online and preventing costly premature pump failure. Along with superior protection, measuring underload using power allows for a more flexible trip range, as opposed to measuring by current, which requires a more precise set point. The end result is the elimination of nuisance trips.

Adjustable over/under voltage is included. Plus you get phase unbalance, loss, anti-cycling, phase sequence, and warm start protection. Our overload is wide range - so you never have the wrong sized heaters.

### Built-in power monitoring and fault logging for easy troubleshooting

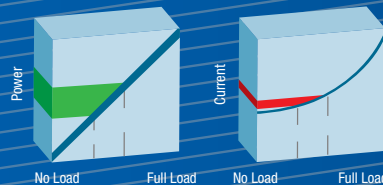
- View voltage, current, power factor, and more through an intuitive display
- Last 5 fault types are recorded (all power condition values are stored)
- Quickly identify common power problems such as phase imbalance, voltage drop, and over/undercurrent conditions to ensure proper pump operation

### Optional Ethernet card provides time-stamped data logging, ending utility power disputes

- Download and display up to 100 faults and alarms, including operational mode and values of operation at the time
- All power condition values are stored by phase for voltage, current, and power factor per fault
- Data is easily displayed and saved on any web browser using an Ethernet connection. Starter incorporates internal web-server. No programming required
- Time and date stamped for utility documentation



NEMA



Get up to 100 faults - even utility power quality - on any web-browser!

### Easy to setup and use

- Inside, the display shows an easy to use menu for setting a wealth of parameters. Adjust any protective or control setting in seconds. For example, choose how long to allow for dry well recovery, set run time periods, and On/Off delays. All this with just a few intuitive keystrokes. The IPS ships with factory default settings pre-programmed for optimal submersible pump protection.

### Internal keypad menu for easy operation

- All control and protective functions are easily programmable
- LEDs indicate Hand/Off/Auto modes, run, and fault conditions

### Industrial grade construction for long life

- Door mounted pilot devices include HOA switch
- UL/NEMA 3R outdoor rating
- Multi-tap transformer accommodates common voltages; no fuse(s) required
- 120 V control power for field devices
- Magnetic contactors feature 2.5 million contactor electrical cycles at full rated current

### Advanced programmable pump control options

- Auto-restart with well recovery timer
- Backspin delay prevents start-ups into draining system
- On delay and off delay settings
- Minimum run time based on last input
- 12-120 V auto run terminal for remote start/stop
- Dry contact terminal for remote start/stop
- Analog input for transducer for use with pressurized tanks (under development - consult factory for availability)

### Main circuit breaker disconnect rated for service entrance

- UL 489 circuit breaker provides branch and short circuit protection
- No fuses required – saves time and money
- Lockable handle for safety



*UL/NEMA Type 3R enclosure*

### Ordering & Sizing Information

#### Intelligent Pump Starter (Combination) 120 - 460 V UL/NEMA 3R & 4 Enclosures (Electronic Overload)

Model No.	UL HP / MAX SF AMPS										Contactor NEMA Size	Wt. (lbs)	Description
	Single-Phase					Three-Phase							
	120 V		230 V			200 V		230 V		460 V			
IPS3R-S1-J-G15	1/3 HP	8 A	1 HP	8 A	2 HP	8 A	2 HP	8 A	5 HP	8 A	1	46	N3R IPS, S1, 8A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-J-G20	1/2 HP	11 A	1.5 HP	11 A	3 HP	11 A	3 HP	11 A	7.5 HP	11 A			N3R IPS, S1, 11A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-J-G30	1 HP	17 A	3 HP	17 A	-	-	5 HP	17 A	10 HP	17 A			N3R IPS, S1, 17A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-J-G40	1.5 HP	22 A	-	-	-	-	7.5 HP	22 A	15 HP	22 A			N3R IPS, S1, 22A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-J-G50	2 HP	24 A	5 HP	28 A	7.5 HP	25.3 A	10 HP	28 A	20 HP	27 A			N3R IPS, S1, 28A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S2-J-G40	1.5 HP	22 A	-	-	-	-	7.5 HP	22 A	15 HP	22 A	2	50	N3R IPS, S2, 22A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S2-J-G50	2 HP	28 A	5 HP	28 A	7.5 HP	28 A	10 HP	28 A	20 HP	28 A			N3R IPS, S2, 28A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S2-J-G60	3 HP	34A	5 HP	34 A	10 HP	34 A	10 HP	34 A	25 HP	34 A			N3R IPS, S2, 34A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S2-J-G80	-	-	7.5 HP	45 A	-	-	15 HP	45 A	30 HP	45 A			N3R IPS, S2, 45A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S3-J-G80	-	-	7.5 HP	45 A	-	-	15 HP	45 A	30 HP	45 A	3	66	N3R IPS, S3, 45A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S3-J-G100	5 HP	57 A	10 HP	57 A	15 HP	57 A	20 HP	57 A	40 HP	57 A			N3R IPS, S3, 57A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S3-J-G125	5 HP	68 A	15 HP	68 A	20 HP	68 A	25 HP	68 A	50 HP	68 A			N3R IPS, S3, 68A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S3-J-G150	7.5 HP	80 A	15 HP	68 A	25 HP	85 A	30 HP	85 A	60 HP	77 A			N3R IPS, S3, 85A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S4-J-G150	7.5 HP	85 A	15 HP	85 A	25 HP	85 A	30 HP	85 A	60 HP	85 A	4	85	N3R IPS, S4, 85A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S4-J-G200	10 HP	114 A	25 HP	114 A	30 HP	114 A	40 HP	114 A	75 HP	114 A			N3R IPS, S4, 114A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S4-J-G250	15 HP	135 A	-	-	40 HP	120 A	50 HP	130 A	100 HP	124			N3R IPS, S4, 135A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S5-J-G300	-	-	-	-	50 HP	171 A	60 HP	171 A	125 HP	171 A	5	240	N3R IPS, S5, 171A, w/ SCM, HOA, CB Disc. & 200VA CPT
IPS3R-S5-J-G400	-	-	50 HP	216 A	75 HP	228 A	75 HP	228 A	150 HP	228 A			N3R IPS, S5, 228A, w/ SCM, HOA, CB Disc. & 200VA CPT
IPS3R-S5-J-G500	-	-	-	-	75 HP	285 A	100 HP	285 A	200 HP	285 A			N3R IPS, S5, 285A, w/ SCM, HOA, CB Disc. & 200VA CPT
IPS4-S5P-J-G600	-	-	-	-	100 HP	342 A	125 HP	342 A	250 HP	342 A	5+	382	N4 IPS, S5P, 342A, w/ SCM, HOA, CB Disc. & 200VA CPT
IPS4-S5P-J-G800	-	-	-	-	125 HP	359 A	150 HP	360 A	300 HP	361 A			N4 IPS, S5P, 361A, w/ SCM, HOA, CB Disc. & 200VA CPT

\* Note: Use MAX service factor amps when sizing for submersible motor applications.

#### Intelligent Pump Starter (Combination) 575 V UL/NEMA 3R & 4 Enclosures (Electronic Overload)

Model No.	UL HP / MAX SF AMPS		Contactor NEMA Size	Wt. (lbs)	Description
	Three-Phase				
	575 V				
IPS3R-S1-6J-G20	10 HP	11 A	1	46	N3R 575V IPS, S1, 11A, w/SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-6J-G30	15 HP	17 A			N3R 575V IPS, S1, 17A, w/SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-6J-G40	20 HP	22 A			N3R 575V IPS, S1, 22A, w/SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-6J-G50	25 HP	28 A	2	50	N3R 575V IPS, S1, 28A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S2-6J-G30	15 HP	17 A			N3R 575V IPS, S2, 17A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S2-6J-G40	20 HP	22 A			N3R 575V IPS, S2, 22A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S2-6J-G50	25 HP	28 A			N3R 575V IPS, S2, 28A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S2-6J-G60	30 HP	34 A	3	66	N3R 575V IPS, S2, 34A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S2-6J-G80	40 HP	45 A			N3R 575V IPS, S2, 45A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S3-6J-G60	30 HP	34 A			N3R 575V IPS, S3, 34A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S3-6J-G80	40 HP	45 A	4	85	N3R 575V IPS, S3, 45A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S3-6J-G100	50 HP	57 A			N3R 575V IPS, S3, 57A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S3-6J-G125	60 HP	71 A			N3R 575V IPS, S3, 71A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S3-6J-G150	75 HP	77 A			N3R 575V IPS, S3, 77A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S4-6J-G125	60 HP	71 A	5	240	N3R 575V IPS, S4, 71A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S4-6J-G150	75 HP	85 A			N3R 575V IPS, S4, 85A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S4-6J-G200	100 HP	114 A			N3R 575V IPS, S4, 114A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S4-6J-G250	125 HP	125 A	5+	382	N3R 575V IPS, S4, 125A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S5-6J-G250	125 HP	142 A			N3R 575V IPS, S5, 142A, w/SCM, CB Disc, HOA, 200VA CPT
IPS3R-S5-6J-G300	150 HP	171 A			N3R 575V IPS, S5, 171A, w/SCM, CB Disc, HOA, 200VA CPT
IPS3R-S5-6J-G400	200 HP	228 A			N3R 575V IPS, S5, 228A, w/SCM, CB Disc, HOA, 200VA CPT
IPS4-S5P-6J-G500	250 HP	285 A	5+	382	N4 575V IPS, S5P, 285A, w/SCM, CB Disc, HOA, 200VA CPT
IPS4-S5P-6J-G600	300 HP	289 A			N4 575V IPS, S5P, 289A, w/SCM, CB Disc, HOA, 200VA CPT

\* Note: Use MAX service factor amps when sizing for submersible motor applications.

### Ordering & Sizing Information

#### Intelligent Pump Starter (Combination) with Ethernet Card UL/NEMA 3R Enclosure (Electronic Overload)

Model No.	UL HP / MAX SF AMPS										Contactor NEMA Size	Wt. (lbs)	Description
	Single-Phase					Three-Phase							
	120 V		230 V			200 V		230 V		460 V			
IPS3R-S1-J-G15-E	1/3 HP	8 A	1 HP	8 A	2 HP	8 A	2 HP	8 A	5 HP	8 A	1	46	N3R IPS-E, S1, 8A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-J-G20-E	1/2 HP	11 A	1.5 HP	11 A	3 HP	11 A	3 HP	11 A	7.5 HP	11 A			N3R IPS-E, S1, 11A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-J-G30-E	1 HP	17 A	3 HP	17 A	-	-	5 HP	17 A	10 HP	17 A			N3R IPS-E, S1, 17A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-J-G40-E	1.5 HP	22 A	-	-	-	-	7.5 HP	22 A	15 HP	22 A			N3R IPS-E, S1, 22A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-J-G50-E	2 HP	24 A	5 HP	28 A	7.5 HP	25.3 A	10 HP	28 A	20 HP	27 A			N3R IPS-E, S1, 28A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S2-J-G40-E	1.5 HP	22 A	-	-	-	-	7.5 HP	22 A	15 HP	22 A	2	50	N3R IPS-E, S2, 22A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S2-J-G50-E	2 HP	28 A	5 HP	28 A	7.5 HP	28 A	10 HP	28 A	20 HP	28 A			N3R IPS-E, S2, 28A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S2-J-G60-E	3 HP	34 A	5 HP	34 A	10 HP	34 A	10 HP	34 A	25 HP	34 A			N3R IPS-E, S2, 34A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S2-J-G80-E	-	-	7.5 HP	45 A	-	-	15 HP	45 A	30 HP	45 A			N3R IPS-E, S2, 45A, w/ SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S3-J-G80-E	-	-	7.5 HP	45 A	-	-	15 HP	45 A	30 HP	45 A	3	66	N3R IPS-E, S3, 45A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S3-J-G100-E	5 HP	57 A	10 HP	57 A	15 HP	57 A	20 HP	57 A	40 HP	57 A			N3R IPS-E, S3, 57A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S3-J-G125-E	5 HP	68 A	15 HP	68 A	20 HP	68 A	25 HP	68 A	50 HP	68 A			N3R IPS-E, S3, 71A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S3-J-G150-E	7.5 HP	80 A	15 HP	68 A	25 HP	85 A	30 HP	85 A	60 HP	77 A			N3R IPS-E, S3, 85A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S4-J-G150-E	7.5 HP	85 A	15 HP	85 A	25 HP	85 A	30 HP	85 A	60 HP	85 A	4	85	N3R IPS-E, S4, 85A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S4-J-G200-E	10 HP	114 A	25 HP	114 A	30 HP	114 A	40 HP	114 A	75 HP	114 A			N3R IPS-E, S4, 114A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S4-J-G250-E	15 HP	135 A	-	-	40 HP	120 A	50 HP	130 A	100 HP	124 A			N3R IPS-E, S4, 135A, w/ SCM, HOA, CB Disc. & 100VA CPT
IPS3R-S5-J-G300-E	-	-	-	-	50 HP	171 A	60 HP	171 A	125 HP	171 A	5	240	N3R IPS-E, S5, 171A, w/ SCM, HOA, CB Disc. & 200VA CPT
IPS3R-S5-J-G400-E	-	-	50 HP	216 A	75 HP	228 A	75 HP	228 A	150 HP	228 A			N3R IPS-E, S5, 228A, w/ SCM, HOA, CB Disc. & 200VA CPT
IPS3R-S5-J-G500-E	-	-	-	-	75 HP	285 A	100 HP	285 A	200 HP	285 A			N3R IPS-E, S5, 285A, w/ SCM, HOA, CB Disc. & 200VA CPT
IPS4-S5P-J-G600-E	-	-	-	-	100 HP	342 A	125 HP	342 A	250 HP	342 A	5+	382	N4 IPS-E, S5P, 342A, w/ SCM, HOA, CB Disc. & 200VA CPT
IPS4-S5P-J-G800-E	-	-	-	-	125 HP	359 A	150 HP	360 A	300 HP	361 A			N4 IPS-E, S5P, 361A, w/ SCM, HOA, CB Disc. & 200VA CPT

\* Note: Use MAX service factor amps when sizing for submersible motor applications.

#### Intelligent Pump Starter (Combination) 575 V UL/NEMA 3R & 4 Enclosures (Electronic Overload)

Model No.	UL HP / MAX SF AMPS		Contactor NEMA Size	Wt. (lbs)	Description
	Three-Phase				
	575 V				
IPS3R-S1-6J-G20-E	10 HP	11A	1	46	N3R 575V IPS-E, S1, 11A, w/SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-6J-G30-E	15 HP	17A			N3R 575V IPS-E, S1, 17A, w/SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-6J-G40-E	20 HP	22A			N3R 575V IPS-E, S1, 22A, w/SCM, HOA, CB Disc. & 50VA CPT
IPS3R-S1-6J-G50-E	25 HP	28A			N3R 575V IPS-E, S1, 28A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S2-6J-G30-E	15 HP	17A			N3R 575V IPS-E, S2, 17A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S2-6J-G40-E	20 HP	22A	2	50	N3R 575V IPS-E, S2, 22A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S2-6J-G50-E	25 HP	28A			N3R 575V IPS-E, S2, 28A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S2-6J-G60-E	30 HP	34A			N3R 575V IPS-E, S2, 34A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S2-6J-G80-E	40 HP	45A			N3R 575V IPS-E, S2, 45A, w/SCM, CB Disc, HOA, 50VA CPT
IPS3R-S3-6J-G60-E	30 HP	34A	3	66	N3R 575V IPS-E, S3, 34A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S3-6J-G80-E	40 HP	45A			N3R 575V IPS-E, S3, 45A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S3-6J-G100-E	50 HP	57A			N3R 575V IPS-E, S3, 57A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S3-6J-G125-E	60 HP	71A	4	85	N3R 575V IPS-E, S3, 71A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S3-6J-G150-E	75 HP	77A			N3R 575V IPS-E, S3, 77A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S4-6J-G125-E	60 HP	71A			N3R 575V IPS-E, S4, 71A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S4-6J-G150-E	75 HP	85A			N3R 575V IPS-E, S4, 85A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S4-6J-G200-E	100 HP	114A	5	240	N3R 575V IPS-E, S4, 114A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S4-6J-G250-E	125 HP	125A			N3R 575V IPS-E, S4, 125A, w/SCM, CB Disc, HOA, 100VA CPT
IPS3R-S5-6J-G250-E	125 HP	142A			N3R 575V IPS-E, S5, 142A, w/SCM, CB Disc, HOA, 200VA CPT
IPS3R-S5-6J-G300-E	150 HP	171A	5+	382	N3R 575V IPS-E, S5, 171A, w/SCM, CB Disc, HOA, 200VA CPT
IPS3R-S5-6J-G400-E	200 HP	228A			N3R 575V IPS-E, S5, 228A, w/SCM, CB Disc, HOA, 200VA CPT
IPS4-S5P-6J-G500-E	250 HP	285A			N4 575V IPS-E, S5P, 285A, w/SCM, CB Disc, HOA, 200VA CPT
IPS4-S5P-6J-G600-E	300 HP	289A			N4 575V IPS-E, S5P, 289A, w/SCM, CB Disc, HOA, 200VA CPT

\* Note: Use MAX service factor amps when sizing for submersible motor applications.

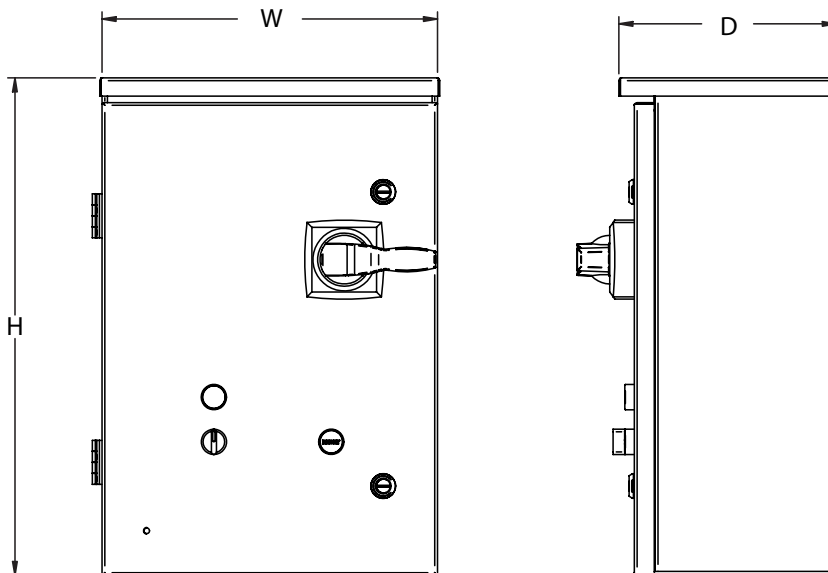
## IPS Accessories

Model No.	Wt. (lbs)	Description
IPS-24	< 1	24 VAC Control Circuit
IPS-SPB	< 1	Start Pushbutton Control (Door Mounted)
IPS-STSP	< 1	Start/Stop Pushbutton Control (Door Mounted)

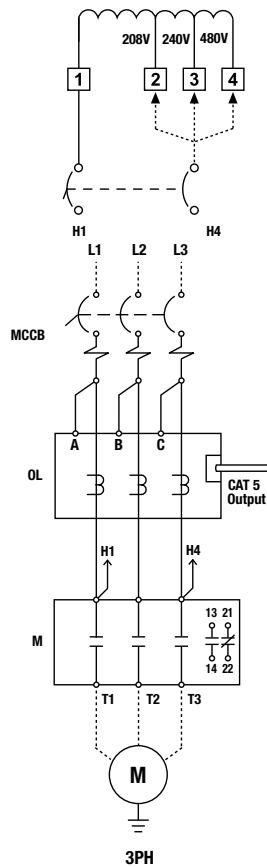
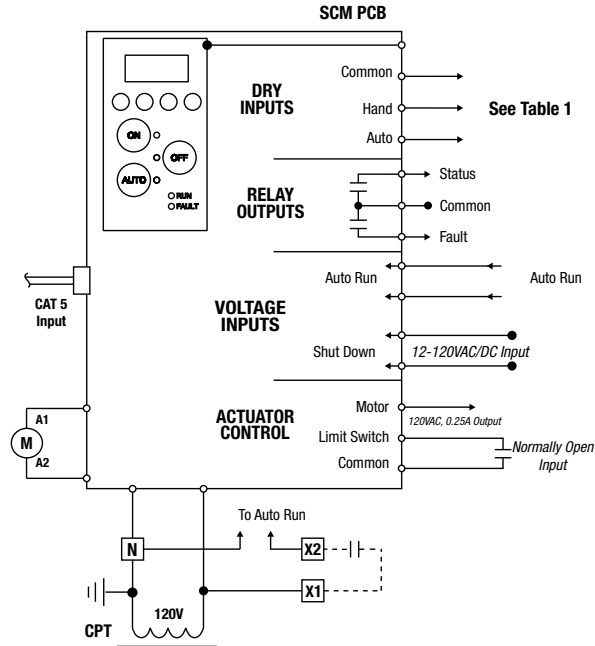
## IPS Dimensions

Starter Size	H	W	D	Description
Size 1, Size 2	22	15	10	UL/NEMA 3R Enclosure
Size 3, Size 4	32	15	10	
Size 5	42	30	12	
Size 5+	48	36	16	UL/NEMA 4 Enclosure

\*All measurements in inches

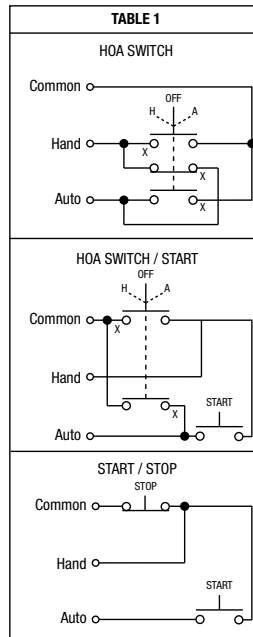


## Wiring Diagram



**TRANSFORMER PRIMARY  
CIRCUIT BREAKER SIZING**

VA	V	208/230	480
50VA		N/A	N/A
100VA		2A	1A



SCHM-IPS3R/C-V2

### IPS Specifications

Starter Type	
Intelligent Pump Starter	
Combination, Service Rated	
UL Type 3R	
User Interface	
Hand-Off-Auto Keypad with LEDs	Internal
Hand-Off-Auto Switch	Door mounted
Standard Control Operations	
Inputs	
Voltage Auto Run	Apply 10 - 130 VAC/DC to energize
Shutdown	Apply 10 - 130 VAC/DC to energize
Actuator position switch	N.O. dry contact closure
Dry Auto	N.O. dry contact closure
Outputs	
Run Status	N.O., 0.3 A@125 VAC; 1 A@24 VAC
Fault relay	N.O., 0.3 A@125 VAC; 1 A@24 VAC
Actuator motor control	120 VAC, 0.25A max
Operational	
Overload Type	Electronic; I <sup>2</sup> t Thermal Trip Curve
Power fail mode	Restart last mode, no delay (default)
	Restart with delay
	Restart Off - LED flashes last mode
On/Off Time Delay	Programmable, selectable from 0.1 to 99 seconds
Environmental	
Ambient Operating Temp	-5 to 140 °F (-20 to 60 °C)
Ambient Storage Temp	-5 to 185 °F (-20 to 85 °C)
Relative Humidity	5% to 95% non-condensing
Protective Functions	
Overload	Current Setting: Varies per Starter unit Trip Class: 5-30 (10 default) Reset: Automatic/Manual (manual default)
Warm Start Provision	Delays restart based on calculated motor temperature when enabled
Locked Rotor / Stall	Trip within 0.5s
Ground Fault (UL1053)	Current Setting: 1.0-9.9A (1.0A default)
Current Phase Unbalance	Setting: 1-50%
Over/Under Voltage	Setting: +/- 5-25%
Voltage Phase Unbalance	Setting: 1-20%
Voltage Phase Loss	Setting: 1-50%
Phase Sequence	Trip in 0.1s when enabled
Under Power	Setting: 0-99% of nominal HP
Over Power	Setting: 101-200% of nominal HP
Cycle Fault	Trip if cycle rate exceeds a ratio of 1200 starts per hour



**Franklin Electric**

400 East Spring Street, Bluffton, IN 46714

Tel: 260.824.2900 • Fax: 260.824.2909

[www.franklin-electric.com](http://www.franklin-electric.com)

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