

## SOFT STARTERS - IPS-RV INTELLIGENT PUMP SOFT STARTER

Integrated electronic pump protection overload and power metering and Modbus RTU communications.

3Ø, 50/60 Hz, 200-600 VAC, 2-250 hp

### INTEGRATED TRU-POWER™ ELECTRONIC PROTECTION

- Eliminates need for costly pump protection relays
- Dry pump detection using power (nuisance trip-free); time-based automatic restart and well recovery mode
- Features a wide-range, adjustable, class 5-30 electronic overload
- Provides superior motor protection from the following conditions:
  - Over/under power (dry-run)
  - Over/under voltage protection
  - Voltage phase loss
  - Voltage and current phase unbalance
  - Stalled/locked rotor
  - Cycle fault
  - Ground fault (UL1053 certified)
  - Voltage phase reversal

### SOFT STARTER FEATURES

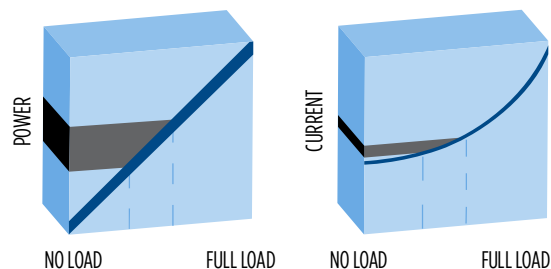
- Full hp rated bypass contactor
- Across-the-line start for emergency situations (turns the soft-starter into a standard IPS)
- Start modes feature an adjustable current limit, initial voltage, and start time with a torque boost feature
- Stop modes include:
  - Coast to stop
  - Linear deceleration (reduces water-hammer effect)
  - Adjustable stop voltage and stop time
- SCR over-temperature detection
- Shorted SCR detection

### TRU-POWER™ SENSING

Tru-power™ sensing protects pumps from dry-run, dead head, run-out, 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.

### BUILT-IN MONITORING & FAULT LOGGING

- View voltage, current, power factor, and more through an intuitive display
- Built-in fault log, counter and parameter change log: records last 15 fault types with power condition values, stores how many times each fault type has occurred (up to 255 count), and logs changes to parameter settings (e.g. FLA, OV/UV, under power)
- Built-in Modbus RTU communications card



NOTE: Power is linear for superior load monitoring

## IPS-RV INTELLIGENT PUMP STARTER

### EASY TO SET-UP 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-RV ships with factory default settings pre-programmed for optimal submersible pump protection.

### INDUSTRIAL GRADE CONSTRUCTION

- Door mounted heavy-duty HOA switch
- Housed in an outdoor rated, gasketed, NEMA 3R enclosure
- Multi-tap control power transformer with integrated secondary protection accommodates common motor voltages. No fuses required!
- Includes 120 VAC control power for field devices

### ADVANCED PROGRAMMABLE PUMP CONTROL

- Automatic fault reset
- Backspin delay - prevents start-up while system is draining
- On and off delay settings
- Well recovery mode (up to 48 hours)
- Minimum run time based on last input
- 12-120 V input for remote start/stop
- Dry contact input for remote start/stop
- Dry contact inputs for float switches
- Analog input for (selectable) 0-10 V, 4-20 mA, or 10k thermistor, viewable as a Modbus point

### STANDARD CIRCUIT BREAKER DISCONNECT\*

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

\*Service entrance rated.



*The internal keypad and LCD make the IPS-RV intuitive and versatile. Parameters are easily changed and faults are clearly displayed.*

*Standard control features include a 12-120V auto run input (irrigation control system, etc.), shutdown terminal for applications such as a low level float switch, and more.*



*The multi-tap power transformer accepts inputs of 200V, 230 V, and 460 V*

## IPS-RV INTELLIGENT PUMP SOFT STARTER - SIZING INFORMATION - SUBMERSIBLE MOTOR

### 4" 3-PHASE INPUT / 3-PHASE OUTPUT

Model Prefix	Motor			IPS-RV Model No.
	HP	SFA (Max Amps)	Volts	
234501	1/2	3.4	200	IP3R-RV-S0-J-G15
234503	1	5.4		IP3R-RV-S0-J-G15
234504	1.5	6.8		IP3R-RV-S0-J-G15
234305	2	9.3		IPS3R-RV-S1-J-G20
234306	3	12.5		IPS3R-RV-S1-J-G30
234307	5	20.5		IPS3R-RV-S1-J-G40
234308	7.5	30.5		IPS3R-RV-S1P-J-G60
234511	1/2	2.9		230
234513	1	4.7	IP3R-RV-S0-J-G15	
234514	1.5	5.9	IP3R-RV-S0-J-G15	
234315	2	8.1	IPS3R-RV-S1-J-G20	
234316	3	10.9	IPS3R-RV-S1-J-G20	
234317	5	17.8	IPS3R-RV-S1-J-G40	
234318	7.5	26.4	IPS3R-RV-S1P-J-G50	
234521	1/2	1.5	460	
234523	1	2.4		IPS3R-RV-S1-J-G15
234524	1.5	3.1		IPS3R-RV-S1-J-G15
234325	2	4.1		IPS3R-RV-S1-J-G15
234326	3	5.5		IPS3R-RV-S1-J-G15
234327	5	8.9		IPS3R-RV-S1-J-G20
234328	7.5	13.2		IPS3R-RV-S1-J-G30
234595	10	17.3		IPS3R-RV-S1-J-G40
234626	15	25.8		IPS3R-RV-S1P-J-G50
234531	1/2	1.2		575
234533	1	1.9	IPS3R-RV-S1-6J-G15	
234534	1.5	2.4	IPS3R-RV-S1-6J-G15	
234335	2	3.2	IPS3R-RV-S1-6J-G15	
234336	3	4.4	IPS3R-RV-S1-6J-G15	
234337	5	7.1	IPS3R-RV-S1-6J-G15	
234338	7.5	10.6	IPS3R-RV-S1-6J-G20	
234598	10	13.6	IPS3R-RV-S1-6J-G30	
234636	15	20.7	IPS3R-RV-S1-6J-G40	

## IPS-RV INTELLIGENT PUMP SOFT STARTER - SIZING INFORMATION - SUBMERSIBLE MOTOR

### 6" 3-PHASE INPUT / 3-PHASE OUTPUT

Model Prefix	Motor			IPS-RV Model No.
	HP	SFA (Max Amps)	Volts	
236650	5	20	200	IPS3R-RV-S1-J-G40
236651	7.5	28.3		IPS3R-RV-S1P-J-G60
236652	10	37		IPS3R-RV-S2-J-G80
236653	15	54.4		IPS3R-RV-S3-J-G100
236654	20	69.7		IPS3R-RV-S3-J-G125
236655	25	86.3		IPS3R-RV-S4-J-G200
236656	30	104		IPS3R-RV-S4-J-G200
236600	5	17.6		230
236601	7.5	24.6	IPS3R-RV-S1P-J-G50	
236602	10	32.2	IPS3R-RV-S1P-J-G60	
236603	15	47.4	IPS3R-RV-S3-J-G100	
236604	20	60.6	IPS3R-RV-S3-J-G125	
236605	25	76.4	IPS3R-RV-S3P-J-G150	
236606	30	90.4	IPS3R-RV-S4-J-G200	
236610	5	8.8	460	
236611	7.5	12.3		IPS3R-RV-S1-J-G30
236612	10	16.1		IPS3R-RV-S1-J-G30
236613	15	23.7		IPS3R-RV-S1P-J-G50
236614	20	30.3		IPS3R-RV-S1P-J-G60
236615	25	38.2		IPS3R-RV-S2-J-G80
236616	30	45.2		IPS3R-RV-S3-J-G100
236617	40	61.6		IPS3R-RV-S3-J-G125
276618	50	78.1	IPS3R-RV-S3P-J-G150	
276619	60	92.3	IPS3R-RV-S4-J-G200	
236620	5	7.1	575	IPS3R-RV-S1-6J-G15
236621	7.5	9.8		IPS3R-RV-S1-6J-G20
236622	10	12.9		IPS3R-RV-S1-6J-G30
236623	15	19		IPS3R-RV-S1-6J-G40
236624	20	24.2		IPS3R-RV-S1P-6J-G50
236625	25	30		IPS3R-RV-S1P-6J-G60
236626	30	36.2		IPS3R-RV-S2-6J-G80
236627	40	49.6		IPS3R-RV-S3-6J-G100
236628	50	62.5		IPS3R-RV-S3-6J-G125
236629	60	73.9		IPS3R-RV-S3-6J-G150

### 8" 3-PHASE INPUT / 3-PHASE OUTPUT

Model Prefix	Motor			IPS-RV Model No.
	HP	SFA (Max Amps)	Volts	
239600	40	60	460	IPS3R-RV-S3-J-G125
239601	50	73		IPS3R-RV-S3P-J-G150
239602	60	86		IPS3R-RV-S4-J-G200
239603	75	107		IPS3R-RV-S4-J-G200
239604	100	142		IPS3R-RV-S5-J-G250
239105	125	188		IPS3R-RV-S5-J-G400
239106	150	219		IPS3R-RV-S5-J-G400
239107	175	249		IPS3R-RV-S5-J-G500
239108	200	282		IPS3R-RV-S5-J-G500
239610	40	48		575
239611	50	59	IPS3R-RV-S3-6J-G125	
239612	60	69	IPS3R-RV-S3-6J-G125	
239613	75	86	IPS3R-RV-S5-6J-G200	
239614	100	114	IPS3R-RV-S5-6J-G200	
239115	125	151	IPS3R-RV-S5-6J-G300	
239116	150	182	IPS3R-RV-S5-6J-G400	
239117	175	200	IPS3R-RV-S5-6J-G400	
239118	200	226	IPS3R-RV-S5-6J-G500	

## IPS-RV INTELLIGENT PUMP SOFT STARTER - ORDERING & SIZING INFORMATION

### INTELLIGENT PUMP SOFT STARTERS (IPS-RV)

3-Phase, 50/60Hz, 200-460VAC, NEMA Type 3R Enclosed Soft Starter (Includes Service Entrance Circuit Breaker Disconnect)

Model No.	Amp Range	3-Phase Max. Amps / HP					
		200 V		230 V		460 V	
		A	HP*	A	HP*	A	HP**
IPS3R-RV-S1-J-G15	6-8	8	2	8	2	8	5
IPS3R-RV-S1-J-G20	8-11	11	3	11	3	11	7.5
IPS3R-RV-S1-J-G30	11-17	17	3	17	5	17	10
IPS3R-RV-S1-J-G40	16-22	22	5	22	7.5	22	15
IPS3R-RV-S1P-J-G50	20-28	28	7.5	28	10	28	20
IPS3R-RV-S1P-J-G60	24-34	34	10	34	10	34	25
IPS3R-RV-S2-J-G80	32-45	45	10	45	15	45	30
IPS3R-RV-S3-J-G100	40-57	57	15	57	20	57	40
IPS3R-RV-S3-J-G125	50-71	71	20	71	25	71	50
IPS3R-RV-S3P-J-G150	60-85	85	25	85	30	85	60
IPS3R-RV-S4-J-G200	80-114	114	30	114	40	114	75
IPS3R-RV-S4-J-G250	100-DPV**	120	40	130	50	124	100
IPS3R-RV-S5-J-G250	100-142	142	40	142	50	142	100
IPS3R-RV-S5-J-G300	120-170	171	50	171	60	171	125
IPS3R-RV-S5-J-G400	160-220	228	75	228	75	228	150
IPS3R-RV-S5-J-G500	201-285	285	100	285	100	285	200
IPS3R-RV-S5-J-G600	240-320	342	100	342	125	342	250

\*HP rating is based on standard NEMA B, 4-pole motor design as represented in NEC table 430.150 full-load current, 3-phase alternating current motors.

\*\*DPV = Differs per voltage.

3-Phase, 50/60Hz, 575VAC, NEMA Type 3R Enclosed Soft Starter (Includes Service Entrance Circuit Breaker Disconnect)

Model No.	Amp Range	3-Phase Max. Amps / HP	
		575 V	
		A	HP**
IPS3R-RV-S1-6J-G15	6-8	8	5
IPS3R-RV-S1-6J-G20	8-11	11	10
IPS3R-RV-S1-6J-G30	11-17	17	15
IPS3R-RV-S1-6J-G40	16-22	22	20
IPS3R-RV-S1P-6J-G50	20-27	27	25
IPS3R-RV-S1P-6J-G60	24-34	34	30
IPS3R-RV-S2-6J-G80	32-45	45	40
IPS3R-RV-S3-6J-G100	40-57	57	50
IPS3R-RV-S3-6J-G125	50-71	71	60
IPS3R-RV-S3-6J-G150	60-77	77	75
IPS3R-RV-S5-6J-G200	80-114	114	100
IPS3R-RV-S5-6J-G250	100-142	142	125
IPS3R-RV-S5-6J-G300	120-170	170	150
IPS3R-RV-S5-6J-G400	160-220	220	200
IPS3R-RV-S5-6J-G500	201-285	285	250
IPS3R-RV-S5-6J-G600	240-289	289	300

\*HP rating is based on standard NEMA B, 4-pole motor design as represented in NEC table 430.150 full-load current, 3-phase alternating current motors.

### FACTORY INSTALLABLE OPTIONS

Part Number	Description
IPSRV-SRG-240V	Surge Suppressor 240VAC
IPSRV-SRG-480V	Surge Suppressor 480VAC
IPSRV-SRG-600V	Surge Suppressor 600VAC
IPSRV-STSP	Start/Stop Pushbutton Control (in lieu of HOA switch)
IPSRV-HOA-START	Start Pushbutton when HOA in hand
IPSRV-RPL	Run Pilot Light
IPSRV-FPL	Fault Pilot Light
IPSRV-CAM-KEY	Keyed Enclosure Latch
IPSRV-CAM-PAD	Padlockable Enclosure Latch
IPSRV-HOA-KEY	Keyed HOA Switch

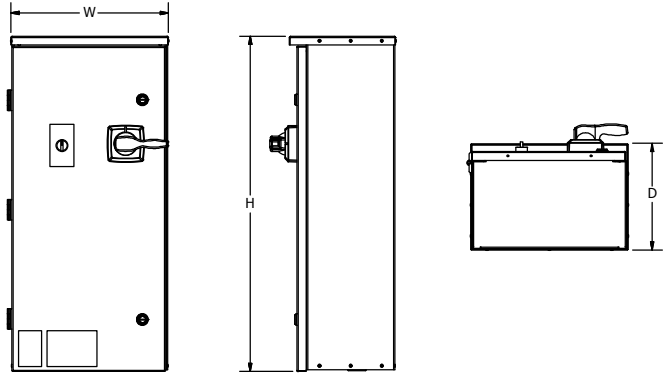
Product Sizing

Submersible Motors - Reference Service Factor Amps on the motor nameplate or Franklin AIM manual  
Surface Motors - Reference Full Load Amps on the motor nameplate

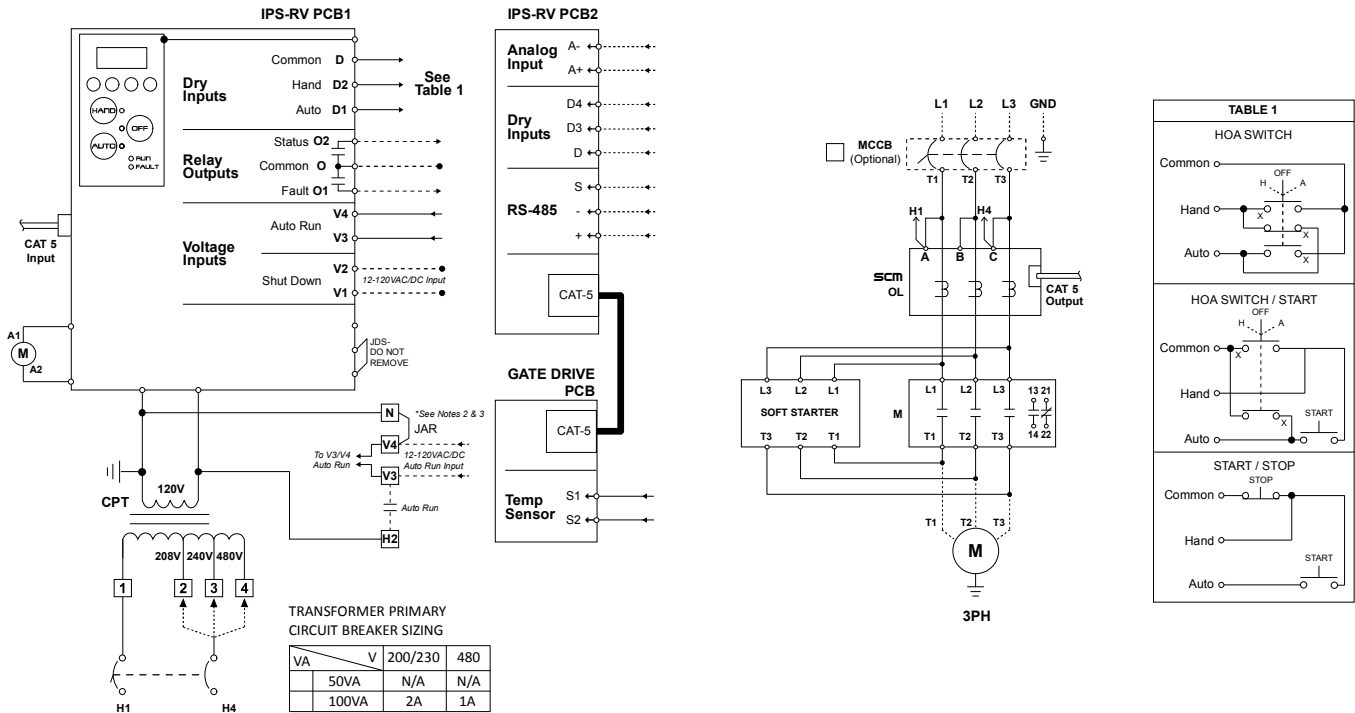
# IPS-RV INTELLIGENT PUMP SOFT STARTER - DIMENSIONS & WIRING DIAGRAM

## DIMENSIONS

Combination Soft Starter	Dimensions (in)		
	H	W	D
IPS3R-RV-S1-J-GXX	32	15	10
IPS3R-RV-S1P-J-GXX			
IPS3R-RV-S2-J-GXX			
IPS3R-RV-S3-J-GXXX			
IPS3R-RV-S3P-J-GXXX			
IPS3R-RV-S4-J-GXXX	36	24	12
IPS3R-RV-S5-J-G250	42	25	12
IPS3R-RV-S5-J-G300			
IPS3R-RV-S5-J-G400			
IPS3R-RV-S5-J-G500	62	25	15
IPS3R-RV-S5-J-G600			
Standard Soft Starter	H	W	D
IPS3R-RV-S2-J-50	32	15	10
IPS3R-RV-S3P-J-XX	36	24	12
IPS3R-RV-S4-J-130			
IPS3R-RV-S5-J-XXX			



## WIRING DIAGRAM



NOTE: Standard wiring schematic shown, actual product wiring may vary depending on options selected. Dashed lines indicate field wiring. When jumper jar is present, terminals V3 & H2 act as connections for a normally open, dry contact, auto run input. Remove jumper jar to use V3 & V4 terminals as a voltage, auto run input. Apply 12-120 VAC/DC to energize.

## IPS-RV INTELLIGENT PUMP SOFT STARTER - SPECIFICATIONS

### SPECIFICATIONS

Soft Starter Type		
With or without a disconnect (service rated, suitable for use as a service disconnect)		
NEMA Type 3R Enclosed		
User Interface		
Settings Adjustments	Internal	
Hand/Off/Auto	Door mounted 3-position switch	
Standard Control Operations		
Inputs	Voltage Auto	Accepts 12-130 VAC/DC. Applying voltage will send a run command to the starter when in auto mode.
	Dry Contact Auto	Normally open dry contact. When closed, the starter will be commanded to run when in auto mode.
	Shutdown	Accepts 12-130 VAC/DC. Applying voltage will open the contactor and the starter will not accept a run command. Hand/Off/Auto LEDs will flash.
	Float Switches	(2) Programmable normally open or normally closed dry contacts.
	RS-485	Modbus RTU slave
Outputs	Analog	Selectable: 0-10 V, 4-20mA, 10k Thermistor, viewable as a Modbus point
	Status Relay	Normally open relay contact, 0.3A @ 125 VAC, 1A @ 24 VAC
	Fault Relay	Normally open relay contact, 0.3A @ 125 VAC, 1A @ 24 VAC
Operational	Overload Type	Electronic, I <sup>2</sup> T trip curve
	Power Fail Modes	Restart in last mode (Hand/Off/Auto) with no delay (default)
		Restart in off mode
	On/Off Time Delay	Restart in off mode if power failure lasts longer than 2 seconds. Restart in last mode if power failure is less than 2 seconds.
	Fault Reset	On/Off, adjustable: 0.1-99 seconds
Starts	Adjustable: manual or automatic (default differs per motor protection feature)	
6/hour, 20 seconds max. start time @ 400% FLA, 30 seconds max. start time @ 300% FLA		
Environmental		
Ambient Operating Temp	-5 °F to 140 °F (-20 °C to 60 °C)	
Ambient Storage Temp	-5 °F to 185 °F (-20 °C to 85 °C)	
Relative Humidity	5% to 95% non-condensing	
Motor / Soft Starter Protection	Adjustment / Description	Default Setting
Overload Current Setting Range	Differs per model	Per SFA
Overload Trip Class	Adjustable: 5-30	10
Overload Service Factor	Adjustable: 0.00-2.00	1.15
Under Power	On/Off, adjustable: 0-99% of measured electrical input	On / 60%
Over Power	On/Off, adjustable: 101-200% of measured electrical input	On / 120%
Over / Under Voltage	On/Off, adjustable: +5-25% over/under the nominal voltage setting	On / 10%
Voltage Phase Unbalance	On/Off, adjustable: 1-20% voltage phase deviation	On / 3%
Voltage Phase Loss	Always on, adjustable: 1-50% voltage phase deviation	10%
Voltage Phase Sequence Reversal	On/Off, trips within 0.1 seconds upon voltage phase reversal detection	On
Ground Fault (UL 1053 Certified)	On/Off, adjustable: 1.0-9.9A	On / 1A
Cycle Fault	On/Off, adjustable: trip if cycle rate exceeds 20 starts/minute	On
Warm Start Provision	On/Off, delays motor restart based on calculated motor temperature	On
Current Phase Unbalance	On/Off, adjustable: 1-50% current phase unbalance	On / 5%
Locked Rotor / Stall	On/Off, trips within 0.5 seconds	On
Shorted SCR	Always on: trips upon detection of a shorted SCR or no motor	On
Open SCR	Always on: trips if no current is detected during start-up or bypass	On
SCR Over-Temperature	Always on: trips if the SCR temperature reaches 125 °C	On
Across-the-Line Start	On/Off: allows the user to start the motor across-the-line. (Turns soft starter into standard IPS)	Off