

IPS-RV INTELLIGENT PUMP SOFT STARTER

Integrated electronic pump protection overload and power metering and Modbus TRU 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)
 - Voltage phase loss
 - Stalled/locked rotor
 - Ground fault (UL1053 certified)
- Over/under voltage protection
- Voltage and current phase unbalance
- Cycle fault
- Voltage phase reversal

SOFT STARTER FEATURES

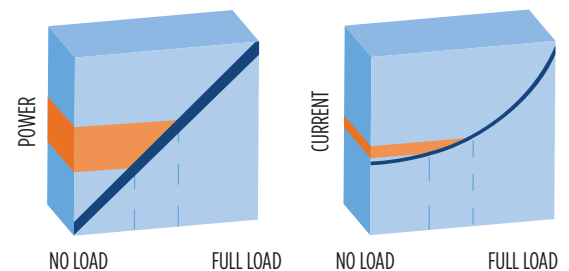
- Full hp rated bypass contactor
- Across-the-line start for emergency situations (turns the soft-starter into a standard IPS)
- Start modes feature an adjustable current limit, initial voltage, and start time with a torque boost feature
- Stop modes include:
 - Coast to stop
 - Linear deceleration (reduces 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 - ORDERING & SIZING INFORMATION

IPS-RV (200~460 VAC)

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

Part Number	200 V - 460 V 3-Phase SFA Range** (A)	3-PHASE HP (UL) / Max. SFA**								Contactor NEMA Size
		200 V		230 V		460 V		600 V		
		HP	SFA	HP	SFA	HP	SFA	HP	SFA	
IPS3R-RV-S1-J-G15	6-8	2	8	2	8	5	8	-	-	1
IPS3R-RV-S1-J-G20	8-11	3	11	3	11	7.5	11	-	-	
IPS3R-RV-S1-J-G30	11-17	3	17	5	17	10	17	-	-	
IPS3R-RV-S1-J-G40	16-22	5	22	7.5	22	15	22	-	-	
IPS3R-RV-S1P-J-G50	20-28	7.5	28	10	28	20	28	-	-	1+
IPS3R-RV-S1P-J-G60	24-34	10	34	10	34	25	34	-	-	
IPS3R-RV-S2-J-G80	32-45	10	45	15	45	30	45	-	-	2
IPS3R-RV-S3-J-G100	40-57	15	57	20	57	40	57	-	-	3
IPS3R-RV-S3-J-G125	50-71	20	71	25	71	50	71	-	-	
IPS3R-RV-S3P-J-G150	60-85	25	85	30	85	60	85	-	-	3+
IPS3R-RV-S4-J-G200	80-114	30	114	40	114	75	114	-	-	4
IPS3R-RV-S4-J-G250	100-DPV*	40	120	50	130	100	124	-	-	
IPS3R-RV-S5-J-G250	100-142	40	142	50	142	100	142	-	-	5
IPS3R-RV-S5-J-G300	120-170	50	170	50	171	125	171	-	-	
IPS3R-RV-S5-J-G400	160-220	60	220	75	220	150	220	-	-	
IPS3R-RV-S5-J-G500	201-285	100	285	100	285	200	285	-	-	
IPS3R-RV-S5-J-G600	240-320	100	320	100	320	250	320	-	-	

*DPV = Differs per voltage

**Use SFA Range or Max. SFA when sizing for submersible motor applications. If an amperage value for SFA is not published on the motor nameplate, consider SFA range to be FLA range.

IPS-RV (200~460 VAC)

3-Phase, 50/60 Hz, 200-460 VAC, NEMA Type 3R Enclosed - Standard Soft Starter. Disconnect not Included.

Part Number	200 V - 460 V 3-Phase SFA Range** (A)	3-PHASE HP (UL) / Max. SFA**								Contactor NEMA Size
		200 V		230 V		460 V		600 V		
		HP	SFA	HP	SFA	HP	SFA	HP	SFA	
IPS3R-RV-S2-J-50	1-50	15	50	15	50	30	50	-	-	2
IPS3R-RV-S3P-J-85	1-85	25	85	30	85	77	85	-	-	3+
IPS3R-RV-S4-J-130	50-DPV*	40	120	50	130	100	124	-	-	4
IPS3R-RV-S5-J-170	50-170	50	170	60	170	125	170	-	-	5
IPS3R-RV-S5-J-220	151-220	60	220	75	220	150	220	-	-	
IPS3R-RV-S5-J-270	176-270	75	270	100	270	200	270	-	-	
IPS3R-RV-S5-J-320	201-320	100	320	125	320	250	320	-	-	

*DPV = Differs per voltage

**Use SFA Range or Max. SFA when sizing for submersible motor applications. If an amperage value for SFA is not published on the motor nameplate, consider SFA range to be FLA range.

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

IPS-RV (600 VAC)

3-Phase, 50/60 Hz, 600 VAC, NEMA Type 3R Enclosed - Combination Soft Starter. Includes Service Entrance Circuit Breaker Disconnect

Part Number	600 V 3-Phase SFA Range** (A)	3-PHASE HP (UL) / Max. SFA**								Contactor NEMA Size
		200 V		230 V		460 V		600 V		
		HP	SFA	HP	SFA	HP	SFA	HP	SFA	
IPS3R-RV-S1-6J-G15	6-8	-	-	-	-	-	-	5	8	1
IPS3R-RV-S1-6J-G20	8-11	-	-	-	-	-	10	11		
IPS3R-RV-S1-6J-G30	11-17	-	-	-	-	-	15	17		
IPS3R-RV-S1-6J-G40	16-22	-	-	-	-	-	20	22		
IPS3R-RV-S1P-6J-G50	20-27	-	-	-	-	-	25	27	1+	
IPS3R-RV-S1P-6J-G60	24-34	-	-	-	-	-	30	34		
IPS3R-RV-S2-6J-G80	32-45	-	-	-	-	-	40	45	2	
IPS3R-RV-S3-6J-G100	40-57	-	-	-	-	-	50	57	3	
IPS3R-RV-S3-6J-G125	50-71	-	-	-	-	-	60	71		
IPS3R-RV-S3-6J-G150	60-77	-	-	-	-	-	75	77		
IPS3R-RV-S5-6J-G200	80-114	-	-	-	-	-	100	114	5	
IPS3R-RV-S5-6J-G250	100-142	-	-	-	-	-	125	142		
IPS3R-RV-S5-6J-G300	120-170	-	-	-	-	-	150	170		
IPS3R-RV-S5-6J-G400	160-220	-	-	-	-	-	200	220		
IPS3R-RV-S5-6J-G500	201-285	-	-	-	-	-	250	285		
IPS3R-RV-S5-6J-G600	240-289	-	-	-	-	-	300	289		

**Use SFA Range or Max. SFA when sizing for submersible motor applications. If an amperage value for SFA is not published on the motor nameplate, consider SFA range to be FLA range.

IPS-RV (600 VAC)

3-Phase, 50/60 Hz, 600 VAC, NEMA Type 3R Enclosed - Standard Soft Starter. Disconnect not Included

Part Number	600 V 3-Phase SFA Range** (A)	3-PHASE HP (UL) / Max. SFA**								Contactor NEMA Size
		200 V		230 V		460 V		600 V		
		HP	SFA	HP	SFA	HP	SFA	HP	SFA	
IPS3R-RV-S2-6J-50	1-50	-	-	-	-	-	-	40	50	2
IPS3R-RV-S3P-6J-77	1-77	-	-	-	-	-	-	75	77	3+
IPS3R-RV-S5-6J-170	50-170	-	-	-	-	-	-	150	170	5
IPS3R-RV-S5-6J-220	151-220	-	-	-	-	-	-	200	220	
IPS3R-RV-S5-6J-289	201-289	-	-	-	-	-	-	300	289	

**Use SFA Range or Max. SFA when sizing for submersible motor applications. If an amperage value for SFA is not published on the motor nameplate, consider SFA range to be FLA range.

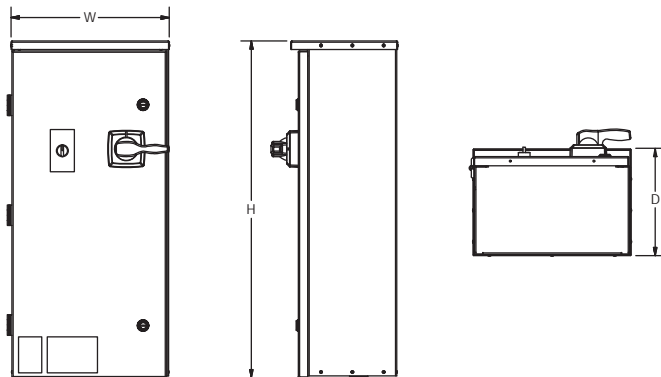
OPTIONS (FACTORY INSTALLABLE)

Part Number	Description
IPS-SRG240	Surge Suppressor, 200/230 V
IPS-SRG480	Surge Suppressor, 460 V
IPS-SRG600	Surge Suppressor, 600 V
IPS-RV-SHT	Shunt Trip, will trip MCCB in the event of a SCR short
IPS-SRG	Surge Suppressor, Universal, Corner Grounded Delta Configuration
IPS-RPL	Run Pilot Light, Green
IPS-FPL	Fault Pilot Light, Red
IPS-SPB	Start Push button Control
IPS-STSP	Start/Stop Push button Control (In Lieu of Hand/Off/Auto Switch)
IPS-24	24 VAC Control Circuit (In Lieu of 120 VAC Control Circuit)

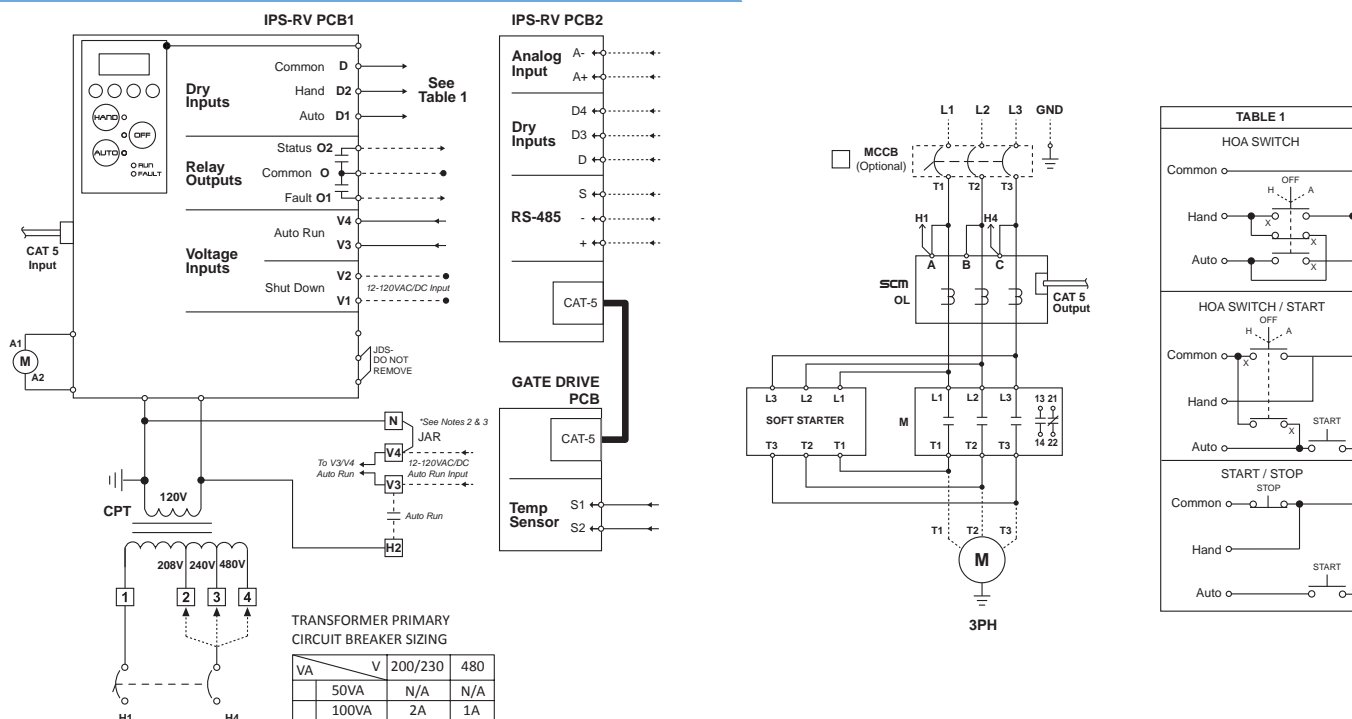
IPS-RV INTELLIGENT PUMP SOFT STARTER - DIMENSIONS & WIRING DIAGRAM

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	36	24	12
IPS3R-RV-S4-J-GXXX			
IPS3R-RV-S5-J-G250			
IPS3R-RV-S5-J-G300			
IPS3R-RV-S5-J-G400	42	25	12
IPS3R-RV-S5-J-G500			
IPS3R-RV-S5-J-G600			
Standard Soft Starter	H	W	D
IPS3R-RV-S2-J-50	32	15	10
IPS3R-RV-S3P-J-XX			
IPS3R-RV-S4-J-130	36	24	12
IPS3R-RV-S5-J-XXX	42	25	12



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		
Standard or combination (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
	Analog	Selectable: 0-10 V, 4-20mA, 10k Thermistor, viewable as a Modbus point
Outputs	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 ² 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