

Introduction

As an industry leader in motor control, Benshaw is known for their offering of standard and custom engineered drive packages. If an off-the-shelf unit does not meet your needs, our dedicated team can design the drive solution you need.

Benshaw now offers a complete range of low voltage variable speed drive solutions ... from multi-purpose micro drives and high performance industrial drives to IEEE 519 clean power drives, NEMA 4X washdown duty drives and custom configured packaged drive solutions.

Benshaw GM2 Series is a sensorless vector, variable frequency drive. This micro-drive may be small...but don't let looks fool you. The GM2 Series offers enhanced performance and reliable operation in a robust, yet compact, user-friendly design. Powerful, yet small...it is the ideal choice for cost sensitive OEM or end user requirements. And it is the ideal drive for Benshaw distributors to keep in stock because of its versatility.

The **Benshaw S Series** is a compact yet powerful AC drive designed for the most demanding applications. Available in 'normal duty' ratings up to 15HP and 'heavy duty' ratings up to 10HP, the S Series puts you in control. Whether your application calls for V/Hz control, Sensorless Vector Control or Torque Control, the S Series has you covered. Modbus RTU is standard with optional communication protocols available.

The **Benshaw SW Series** NEMA 4X Washdown Drives are heavy duty rated for applications from 0.5-30HP. Designed for high pressure washdown, all SW Series drives feature a rugged UL Type 4X (IP66) indoor rated polycarbonate enclosure that exceeds NEMA 1, 12, 4 and 4X standards. A convenient built-in power disconnect switch, 4 digit, 7-segment display and an optional remote LCD Display/Keypad with a Quick Start menu, make it easy to program and control.

The **Benshaw H2 Series** sets the new standard for variable frequency drives. It can be used as a general purpose industrial drive with V/hz or Vector control (with ratings for normal or heavy duty applications from 5-800HP). For fan and pumps applications, simply use the built-in macros designed to meet the basic requirements of the water/wastewater, irrigation and HVAC industries. Built in communication protocols include Modbus-RTU, BACnet and Metasys-N2.



SW SERIES - OVERVIEW

The Benschaw SW Series NEMA 4X Washdown Drives are heavy duty rated for applications from 0.5-30HP. Designed for high pressure washdown, all SW Series drives feature a rugged UL Type 4X (IP66) indoor rated polycarbonate enclosure that exceeds NEMA 1, 12, 4 and 4X standards. A convenient built-in power disconnect switch, 4 digit- 7 segment display and an optional remote LCD Display/Keypad with a Quick Start menu, make it easy to program and control. And, standard software gives you the flexibility of programming the drive for V/Hz, Sensorless Vector or Slip Compensation operation...whatever your application requires. An on-board RJ45 Port (Modbus-RTU) and built in EMC filter (480V models) are included in this unique, compact AC drive. The SW Series is the ideal product for either stand-alone or side-by-side installation in the harshest of environments and washdown installations.



STANDARD FEATURES - HARDWARE

- Heavy Duty rated
 - 240V 0.5 HP ~ 20 HP
 - 480V 0.5 HP ~ 30 HP
- Power Disconnect Switch - Built-in
- Display - 4 digit, 7 segment with 4 LED Indicators
- Washdown rated - UL Type 4X (IP66), Indoor only
- EMC Filter (480V only)
- Internal Brake IGBT
- Single Phase Input (derating required)
- RJ45 Port (Modbus - RTU or Remote LCD)

STANDARD FEATURES - SOFTWARE

- Modbus - RTU (via RJ45 or I/O Terminals)
- Control - V/Hz., Sensorless Vector (SVC), Slip Compensation
- Auto Tuning
- SVC (Induction and Permanent Magnet Motors)
- Torque Limits
- PID Control
- Safe Torque Off (STO)
- Fire Mode Input
- Regen Avoidance
- Kinetic Energy Buffering (KEB), Ride Through

SW SERIES - PRICING

240V

Model Number	kW Rating	Heavy Duty 150% OL / 1min.		Dimensions (inches)			Degree of Protection*	Weight (lbs)	List Price
		HP	Amps	H	W	D			
VFD-RSI-0F5-SW-24	0.4	0.5	2.5	10.1	7.09	6.85	UL Type 4X / IP66	7.9	\$1,070
VFD-RSI-001-SW-24	0.75	1	5	10.1	7.09	6.85	UL Type 4X / IP66	7.9	\$1,089
VFD-RSI-002-SW-24	1.5	2	8	10.19	8.66	7.91	UL Type 4X / IP66	11.5	\$1,395
VFD-RSI-003-SW-24	2.2	3	11	10.19	8.66	7.91	UL Type 4X / IP66	11.7	\$1,484
VFD-RSI-005-SW-24	3.7	5	16	10.19	8.66	7.91	UL Type 4X / IP66	12.3	\$1,987
VFD-RSI-007-SW-24	5.5	7.5	24	12.91	9.84	8.94	UL Type 4X / IP66	19.8	\$2,720
VFD-RSI-010-SW-24	7.5	10	32	12.91	9.84	8.94	UL Type 4X / IP66	19.8	\$2,980
VFD-RSI-015-SW-24	11	15	46	15.73	10.24	9.66	UL Type 4X / IP66	21.2	\$3,682
VFD-RSI-020-SW-24	15	20	60	18.11	11.81	9.84	UL Type 4X / IP66	26.7	\$4,190

* Indoor Washdown only.

480V

Model Number	kW Rating	Heavy Duty 150% OL / 1min.		Dimensions (inches)			Degree of Protection*	Weight (lbs)	List Price
		HP	Amps	H	W	D			
VFD-RSI-0F5-SW-44	0.4	0.5	1.3	10.1	7.09	6.85	UL Type 4X / IP66	8.2	\$1,173
VFD-RSI-001-SW-44	0.75	1	2.5	10.1	7.09	6.85	UL Type 4X / IP66	8.2	\$1,334
VFD-RSI-002-SW-44	1.5	2	4	10.19	8.6	7.91	UL Type 4X / IP66	11.7	\$1,431
VFD-RSI-003-SW-44	2.2	3	5.5	10.19	8.6	7.91	UL Type 4X / IP66	12.1	\$1,772
VFD-RSI-005-SW-44	3.7	5	8	10.19	8.6	7.91	UL Type 4X / IP66	12.3	\$2,485
VFD-RSI-007-SW-44	5.5	7.5	12	12.91	9.84	8.94	UL Type 4X / IP66	19.4	\$3,301
VFD-RSI-010-SW-44	7.5	10	16	12.91	9.84	8.94	UL Type 4X / IP66	19.6	\$3,662
VFD-RSI-015-SW-44	11	15	24	15.73	10.24	9.66	UL Type 4X / IP66	21.2	\$3,876
VFD-RSI-020-SW-44	15	20	30	15.73	10.24	9.66	UL Type 4X / IP66	21.6	\$4,701
VFD-RSI-025-SW-44	18.5	25	39	18.11	11.81	9.84	UL Type 4X / IP66	27.3	\$4,787
VFD-RSI-030-SW-44	22	30	45	18.11	11.81	9.84	UL Type 4X / IP66	27.3	\$5,114

* Indoor Washdown only.

SW Series - Accessories

DISPLAY / KEYPAD REMOTE MOUNTING

Part Number	Description	List Price
LCD-100004-00	Remote LCD Display/Keypad, S & SW Series VFD	\$184
VFD-2M-RE-CABLE-H2	Bezel & Cable, RJ45, 2M, S/SW/H2 Series VFD, for Remote Mounting	\$46
VFD-3M-RE-CABLE-H2	Bezel & Cable, RJ45, 3M, S/SW/H2 Series VFD, for Remote Mounting	\$63
CV-100017-00	LCD Cover, Remote Mounting, NEMA 4X, S, SW & H2 Series VFD with 3M Cable	\$278

COMMUNICATION CARDS AND I/O CARDS

Part Number	Description	List Price
PC-100090-00	Extended I/O Card, S & SW Series VFD	\$430
PC-100092-00	Ethernet IP & Modbus TCP Option Card	\$339
PC-100094-00	CANopen Option Card	CF
PC-100095-00	Profinet Option Card	\$677

CF Consult Factory

Price Effective July 1, 2025

SW SERIES - INPUT AND OUTPUT SPECIFICATIONS

240V, 0.5 HP - 5 HP (0.4 - 3.7 kW)

RSI-XXX-SW-24			0F5	001	002	003	005
240V, w/3Ø Input	Heavy Duty 150% OL	HP	0.5	1	2	3	5
		kW	0.4	0.75	1.5	2.2	3.7
		Amps	2.5	5	8	11	16
		KVA	1	1.9	3	4.2	6.1
240V, w/1Ø Input		HP	-	0.5	1	1.5	2
		Amps	1.5	2.8	4.6	6.1	8.8
Rated Output	Output frequency		0-400 Hz (V/Hz, Slip Comp.) 0-120 Hz (IM Sensorless) 0-180 Hz (PM Sensorless)				
	Output voltage (V)		3-phase 0-240V				
Rated Input	Working voltage (V)		3-phase 200-240 VAC (-15% to + 10%) Single Phase: 240 VAC (-5% to + 10%)				
	Input frequency		3-phase 50-60 Hz (± 5%) Single Phase 60 Hz (± 5%)				
	Rated current (A)		2.2	4.9	8.4	11.8	17.5
Heat Dissipation		Watts	11.6	10.5	39.5	41.9	100.0
Weight	lbs		7.9	7.9	11.5	11.9	12.1
	kg		3.6	3.6	5.2	5.4	5.5
Degree of Protection			UL Type 4X (IP66) - Indoor Only				

240V, 7.5 HP - 20 HP (5.5 - 15 kW)

RSI-XXX-SW-24			007	010	015	020
240V, w/3Ø Input	Heavy Duty 150% OL	HP	7.5	10	15	20
		kW	5.5	7.5	11	15
		Amps	24	32	46	60
		KVA	9.1	12.2	17.5	22.9
240V, w/1Ø Input		HP	3	5	7.5	10
		Amps	13	18	26	33
Rated Output	Output frequency		0-400 Hz (V/Hz, Slip Comp.) 0-120 Hz (IM Sensorless) 0-180 Hz (PM Sensorless)			
	Output voltage (V)		3-phase 0-240V			
Rated Input	Working voltage (V)		3-phase 200-240 VAC (-15% to + 10%) Single Phase: 240 VAC (-5% to + 10%)			
	Input frequency		3-phase 50-60 Hz (± 5%) Single Phase 60 Hz (± 5%)			
	Rated current (A)		25.8	34.9	50.8	66.7
Heat Dissipation		Watts	137	149	191	302
Weight	lbs		19.4	19.4	20.7	26.2
	kg		8.8	8.8	9.4	11.9
Degree of Protection			UL Type 4X (IP66) - Indoor Only			

SW SERIES - INPUT AND OUTPUT SPECIFICATIONS

480V, 0.5 HP - 5 HP (0.4 - 3.7 kW)

RSI-XXX-SW-24			0F5	001	002	003	005
480V, w/3Ø Input	Heavy Duty 150% OL	HP	0.5	1	2	3	5
		kW	0.4	0.75	1.5	2.2	3.7
		Amps	1.3	2.5	4	5.5	8
		KVA	1	1.9	3	4.2	6.1
480V, w/1Ø Input		HP	-	0.5	1	1.5	3
		Amps	0.8	1.5	2.3	3.1	4.8
Rated Output	Output frequency	0-400 Hz (V/Hz, Slip Comp.) 0-120 Hz (IM Sensorless) 0-180 Hz (PM Sensorless)					
	Output voltage (V)	3-phase 0-480V					
Rated Input	Working voltage (V)	3-phase 380-480 VAC (-15% to + 10%) Single Phase: 480 VAC (-5% to + 10%)					
	Input frequency	3-phase 50-60 Hz (± 5%) Single Phase 60 Hz (± 5%)					
	Rated current (A)	1.1	2.4	4.2	5.9	8.7	
Heat Dissipation		Watts	8.1	4.7	27.9	25.6	62.8
Weight	lbs		7.9	7.9	11.5	11.9	12.1
	kg		3.6	3.6	5.2	5.4	5.5
Degree of Protection			UL Type 4X (IP66) - Indoor Only				

480V, 7.5 HP - 30 HP (5.5 - 22 kW)

RSI-XXX-SW-24			007	010	015	020	025	030
480V, w/3Ø Input	Heavy Duty 150% OL	HP	7.5	10	15	20	25	30
		kW	5.5	7.5	11	15	18.5	22
		Amps	12	16	24	30	39	45
		KVA	9.1	12.2	18.3	22.9	29.7	34.3
480V, w/1Ø Input		HP	3	5	10	10	15	20
		Amps	7.1	9.5	15	18	23	27
Rated Output	Output frequency	0-400 Hz (V/Hz, Slip Comp.) 0-120 Hz (IM Sensorless) 0-180 Hz (PM Sensorless)						
	Output voltage (V)	3-phase 0-480V						
Rated Input	Working voltage (V)	3-phase 380-480 VAC (-15% to + 10%) Single Phase: 480 VAC (-5% to + 10%)						
	Input frequency	3-phase 50-60 Hz (± 5%) Single Phase 60 Hz (± 5%)						
	Rated current (A)	12.9	17.5	26.5	33.4	43.6	50.7	
Heat Dissipation		Watts	95	87	155	169	277	287
Weight	lbs		19	19.2	20.7	21.2	26.9	26.9
	kg		8.6	8.7	9.4	9.6	12.2	12.2
Degree of Protection			UL Type 4X (IP66) - Indoor Only					

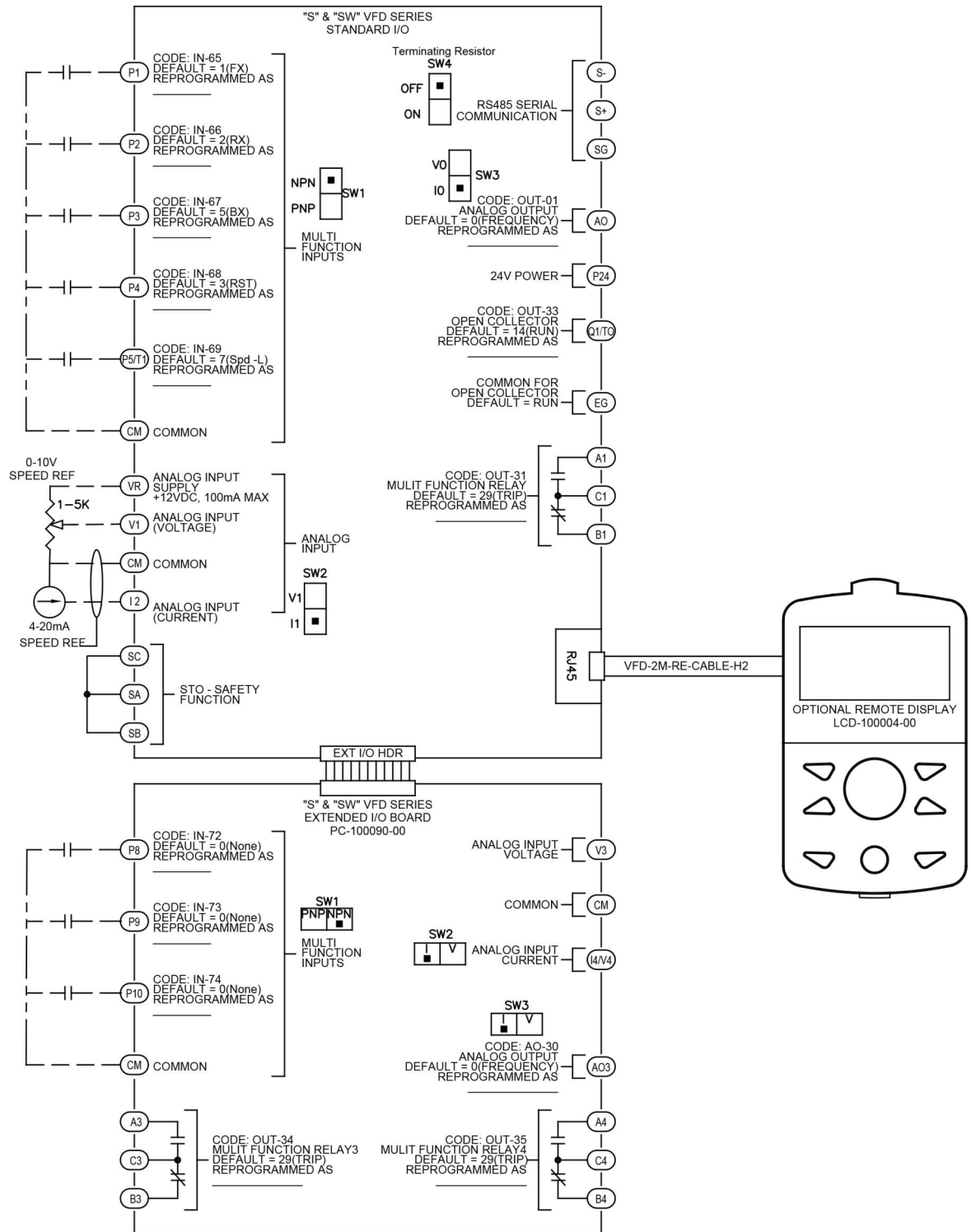
SW SERIES - PRODUCT SPECIFICATION DETAILS

Feature		Description			
Control	Control method	V/F control, Slip compensation, Sensorless vector (IM and PM), IM Torque Control			
	Frequency settings resolution	Digital command: 0.01 Hz			
		Analog command: 0.06 Hz (60 Hz standard)			
	Frequency accuracy	1% of maximum output frequency			
	V/F pattern	Linear, Square Reduction, User V/F			
	Overload capacity	Heavy Duty: 150%, 1 minute			
	Torque boost	Manual torque boost, Automatic torque boost			
	Start/Stop	Keypad, terminal strip, or communication operation			
Frequency settings	Analog type: 0~10V, 0/4~20mA, -10~10V				
	Digital type: Keypad, Pulse Train input, communications				
Operation	Operation functions	Basic	Advanced		
		Start/Stop Operation	Sensorless Vector Control		
		Start/Stop Modes	IM and PM motors		
		Frequency Reference Sources	Auto Tuning		
		Auxiliary Frequency Reference	Torque Control, Torque Limits		
		Multi-Step Speeds	PID Control		
		Multi-Step Accel/Decel Times	Slip Compensation		
		2nd Source (HOA)	Energy Save Mode		
		Accel/Decel Times	Regen Avoidance		
		Accel/Decel Patterns	VFD Fan Control		
		Dwell Frequency Operation			
		Jog	Loss of Power		
		Auto Start	Ride Through (KEB)		
		Auto Reset/Restart	Safe Stop		
			Speed Search		
		V/Hz. Control Pattern			
		Linear, Squared, User V/Hz	Braking		
		Torque Boost	DC Injection Braking		
			Stall Prevention		
		FWD/REV Run Prevention	Power Braking		
		Frequency Limits	Flux Braking		
		Jump Frequencies	External Brake Control		
		3-Wire Control			
		Fire Mode			
		Input	(5) Multi-function terminals (P1 -P5)	Select PNP (Source) or NPN (Sink) mode	
				Functions of the digital inputs are set with parameters In. 65 - In. 69	
• Forward/Reverse	• Run Enable (Interlock)				
• Reset	• External trip				
• Emergency stop	• Jog operation (FWD/REV)				
• Multi-Step frequencies	• Multi-Step Acc/Dec				

SW SERIES - PRODUCT SPECIFICATION DETAILS

Feature		Description		
Input	(5) Multi-function terminals (P1-P5)	<ul style="list-style-type: none"> DC braking during stop Frequency increase 3-Wire Acc/Dec/Stop Select acc/dec/stop 		
	Pulse train	0-32 kHz, 10-12V		
Operation	Output	Open collector (Q1)	Fault output, inverter operating status, many others	Less than DC 24V, 50mA
		Relay, R1		Less than (N.O., N.C.) AC250V 1A
		Analog output	0-12VDC 0(4)-20mA / 0-12VDC (Switch Selectable): Select frequency, output current, output voltage, DC terminal voltage and others	Less than DC 30V, 1A
	Pulse train	0-32 kHz, Low Level: 0-2.5V, High Level: 3.5-12V		
Protection	Trip	Motor Overload	Under Torque	
		Motor Under Load	Inverter Over Heat	
		Over Current (OC1)	Short Circuit (OC2)	
		Over Voltage	External Trip	
		Low Voltage	Hardware Fault	
		Ground Fault	Temperature Sensor (NTC)	
		Motor Over Heat (Eth)	Fan Fault	
		Phase Open (In/Out)	Pre-PID Operation Failure	
		Inverter Overload	External Brake Trip	
		No Motor Trip	Reference Loss	
Over Torque	Option Board Trip			
Alarm	Warnings: Reference Loss, Motor Overload, Motor Under Load, Inverter Overload, Fan, Dynamic Braking Rate Warning, Auto Tuning Error, Inverter Overheat			
Instantaneous Loss of Power	Heavy Duty: Less than 15 ms (~1 cycle) For longer outages use KEB operation and/or Auto Restart operation			
Structure / Working Environment	Cooling type	Forced fan cooling structure		
		Forced cooling type: 240V 0.5HP ~ 20HP 480V: 0.5HP ~ 30HP		
	Protection structure	IP66 (NEMA 4X Indoor Only)		
	Ambient Operating Temperature	14°F ~ + 104°F (-1 0°C ~+ 40°C) No ice or frost should be present		
	Ambient humidity	Less than 90% RH (avoid condensation forming)		
	Storage temperature	-4°F ~ + 149°F (- 20°C ~ + 65°C)		
	Surrounding environment	Prevent contact with corrosive gases, inflammable gases, oil stains, dust, and other pollutants (Pollution Degree 3 Environment).		
	Operation /Altitude/Vibration	3,280 ft. (1000m). Apply derating of 1%voltage/output current for every 328 ft. (100m) above 3280 ft (1,000m) Less than 9.8 m/sec ² (1G)		
Pressure	10 ~ 15 PSI (70~106 kPa)			

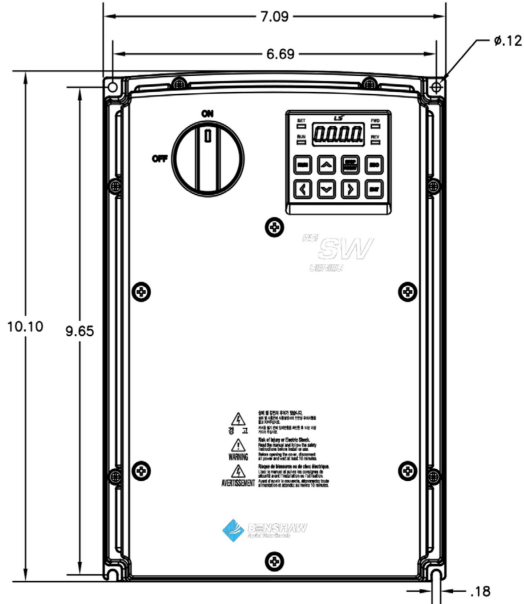
SW SERIES - WIRING



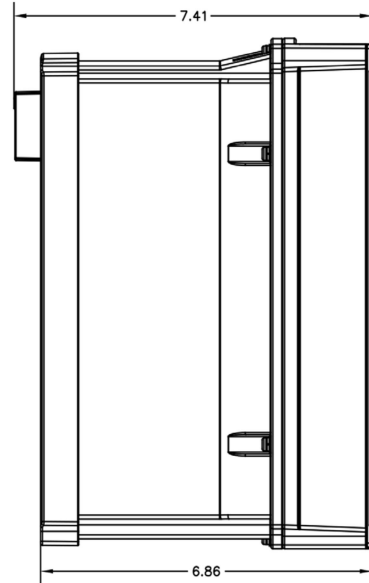
SW SERIES - DRAWINGS

240V, 0.5 HP - 1 HP

480V, 0.5 HP - 1 HP



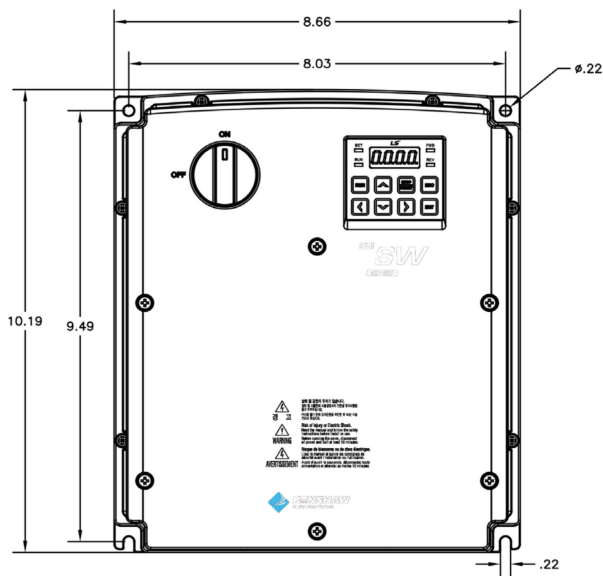
FRONT VIEW



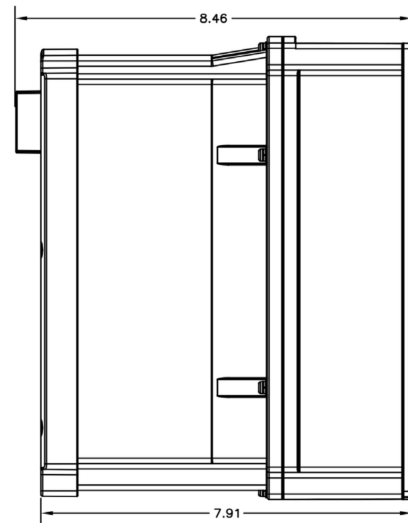
SIDE VIEW

240V, 2 HP - 5 HP

480V, 2 HP - 5 HP



FRONT VIEW

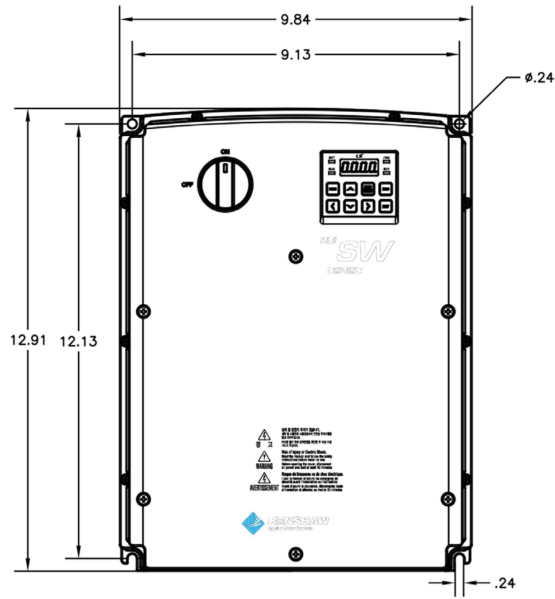


SIDE VIEW

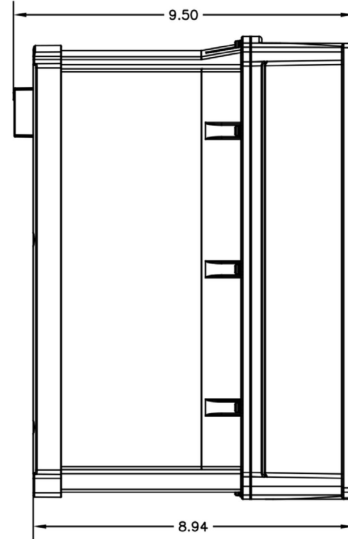
SW SERIES - DRAWINGS

240V, 7.5 HP - 10 HP

480V, 7.5 HP - 10 HP



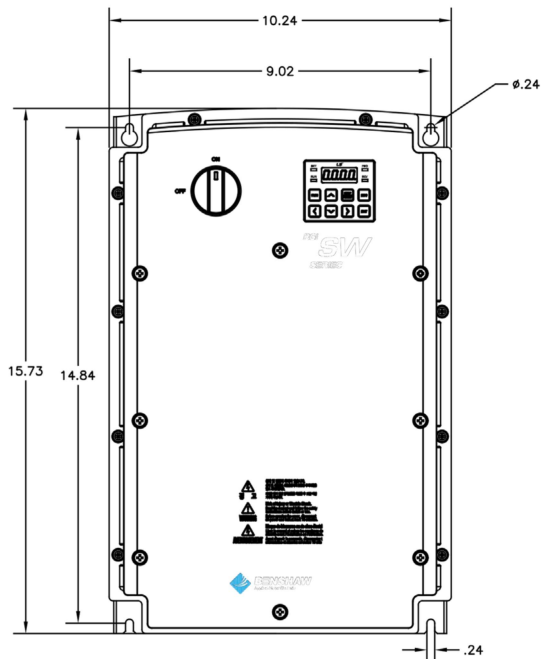
FRONT VIEW



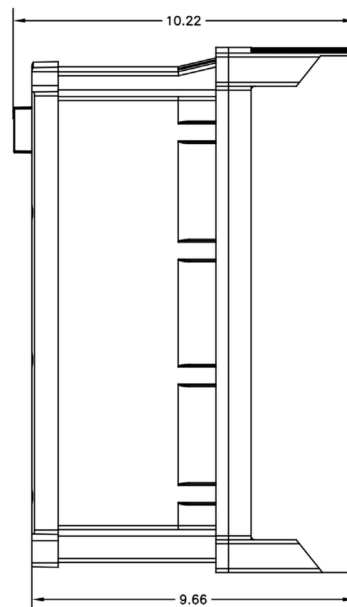
SIDE VIEW

240V, 15 HP

480V, 15 HP - 20 HP



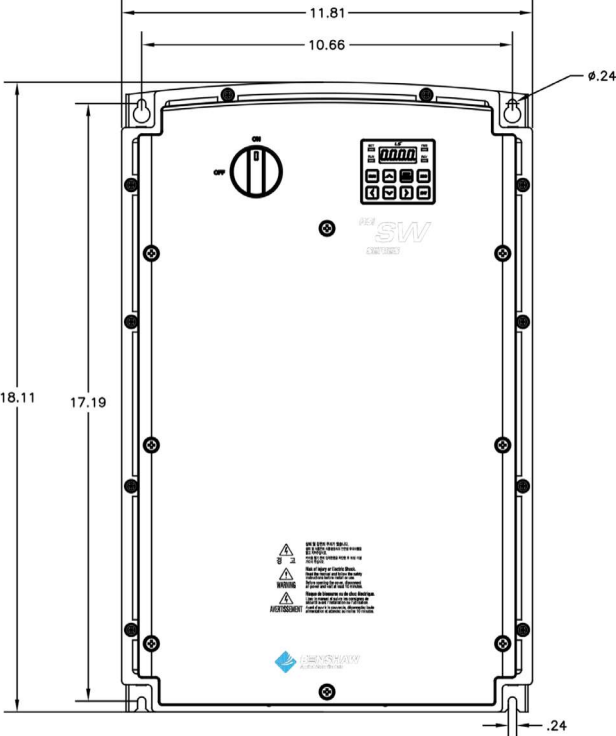
FRONT VIEW



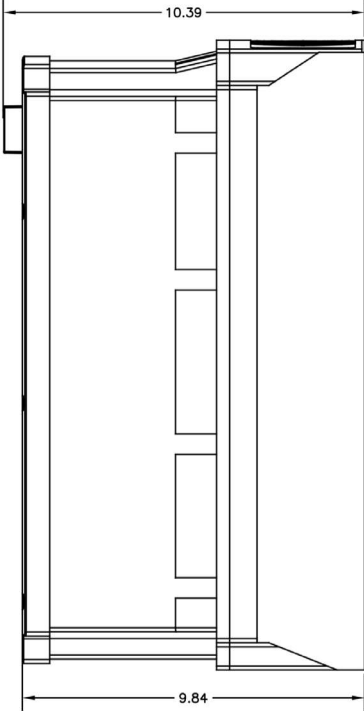
SIDE VIEW

SW SERIES - DRAWINGS

480V, 25 HP - 30 HP



FRONT VIEW



SIDE VIEW