



## 750W DVR PACKAGE DRIVE MOTOR

# INSTRUCTION MANUAL

## SKU 53018 AND SKU 53019



# SAFETY WARNINGS

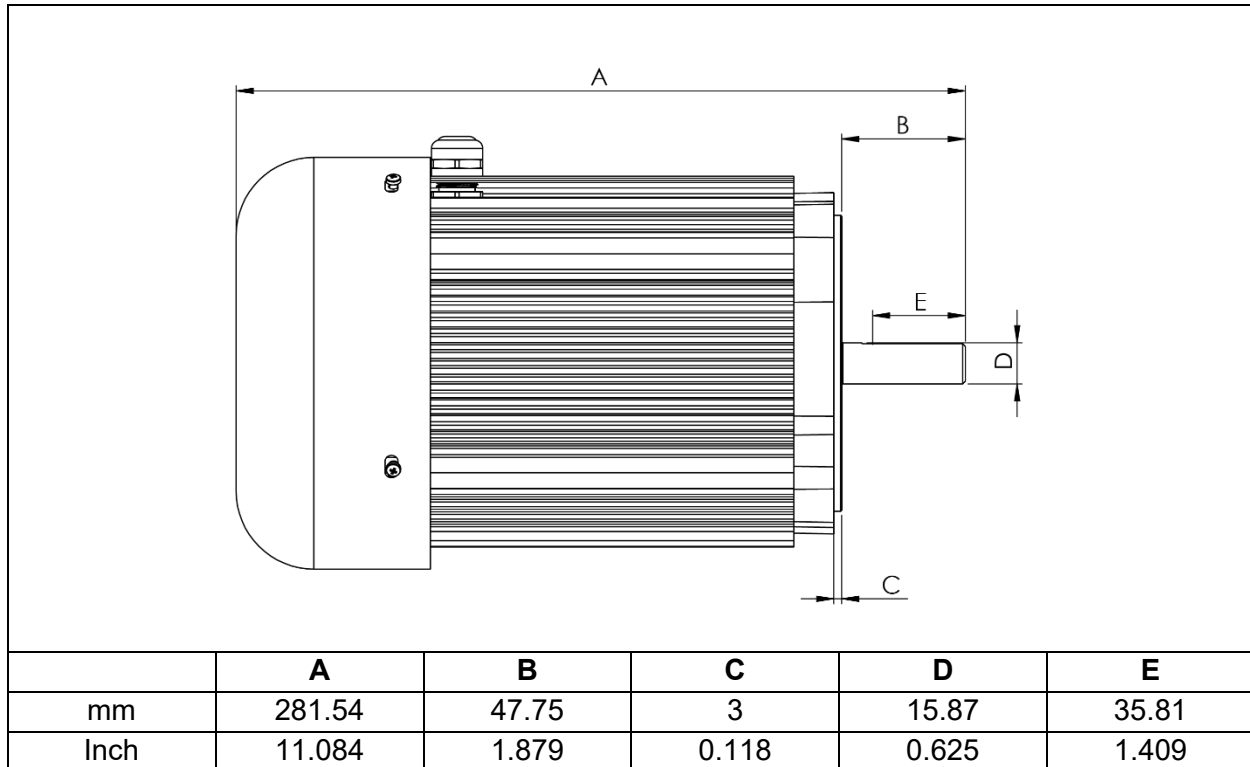
Failure to follow these rules may result in serious injury.

1. **FOR YOUR OWN SAFETY, READ THE ENTIRE MANUAL BEFORE OPERATING THE MOTOR**  
Learn the machine's application, limitations and the hazards.
2. **WEAR PROPER ATTIRE.**  
Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
3. **DO NOT USE IN DANGEROUS ENVIRONMENT**  
Do NOT use power tools in damp or wet locations or expose them to rain. Keep work area well lit. Motor is intended for indoor use only. Failure to do so may void the warranty.
4. **KEEP WORK AREA CLEAN.**  
Cluttered areas and benches invite accidents.
5. **KEEP CHILDREN, PETS AND VISITORS AT SAFE DISTANCE**  
Motor is not recommended for children. Visitors should be kept at a safe distance from work area.
6. **MAKE WORKSHOP CHILD PROOF**  
Make sure your workshop is equipped with locks and master switches. Remove starter keys.
7. **GROUND ALL TOOLS**  
If the tool is equipped with a three-prong plug, it should be plugged into a three-hole electrical outlet. If an adapter is used to accommodate a two-prong receptacle, the adapter plug must be attached to a known ground. Never remove the third prong.
8. **DISCONNECTING MOTOR FROM POWER SUPPLY**  
Disconnect the motor while the motor is being mounted, connected, or reconnected.
9. **AVOID ACCIDENTAL STARTING**  
Make sure switch is in Off position before plugging in power cord.
10. **NEVER LEAVE MACHINE RUNNING UNATTENDED**  
Do not leave machine unless it is turned off and has come to a complete stop.
11. **KEEP GUARDS IN PLACE**  
Keep all guards in place while the machine is operating.
12. **USE CORRECT TOOLS**  
Do not use a tool or attachment to do a job for which it was not designed to do.
13. **USE RECOMMENDED ACCESSORIES**  
The use of improper accessories may cause hazards.
14. **KEEP TOOLS IN GOOD CONDITION**  
Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
15. **STAY FOCUSED AND ALERT**  
Stay focused on your work. If you become tired, take a break until you feel alert again.
16. **CHECK FOR DAMAGED PARTS**  
Before operating machine, check for damaged parts. Ensure it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, mounting, and any other conditions that may affect its operation. Any damaged part should be properly repaired or replaced before using the motor.
17. **DRUGS, ALCOHOL, MEDICATION**  
Do not operate machine while under the influence of drugs, alcohol, or any medication.
18. **E-STOPS AND E-BRAKES**  
The motor is not configured to operate e-stop or e-brake accessories.

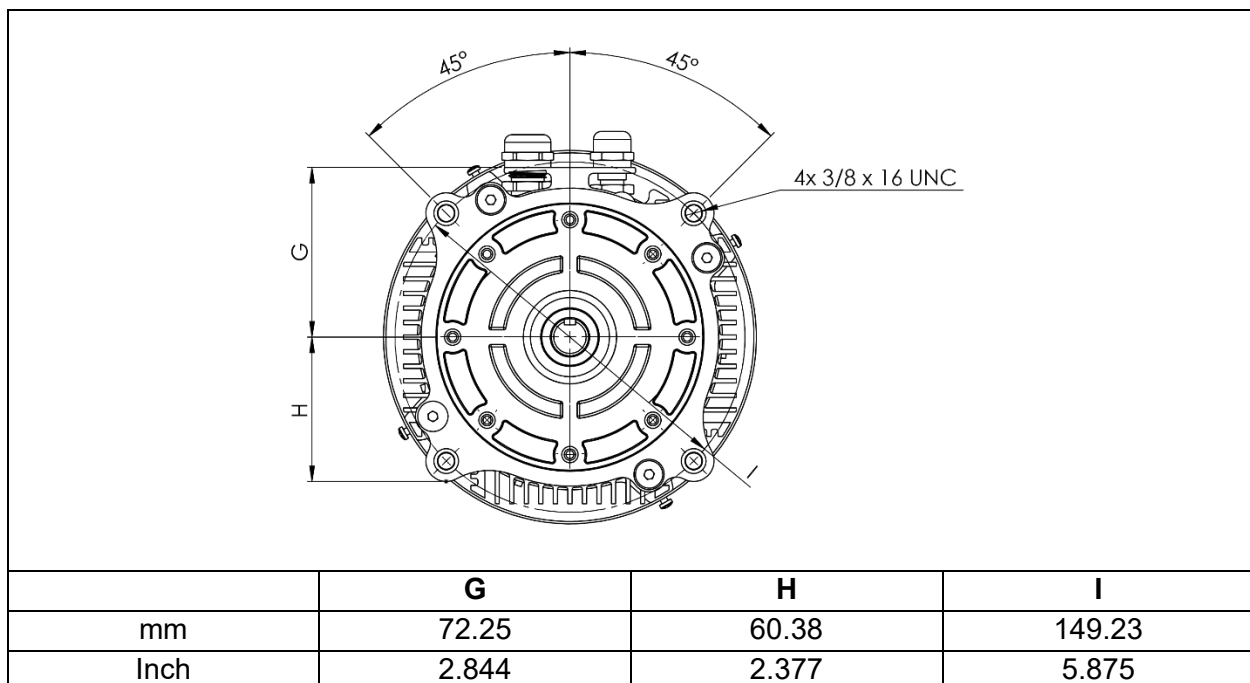
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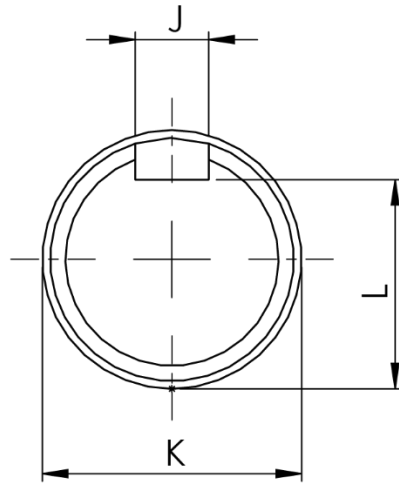
## OVERALL DIMENSIONS – NEMA 56C



## MOTOR MOUNTING AREA – NEMA 56C

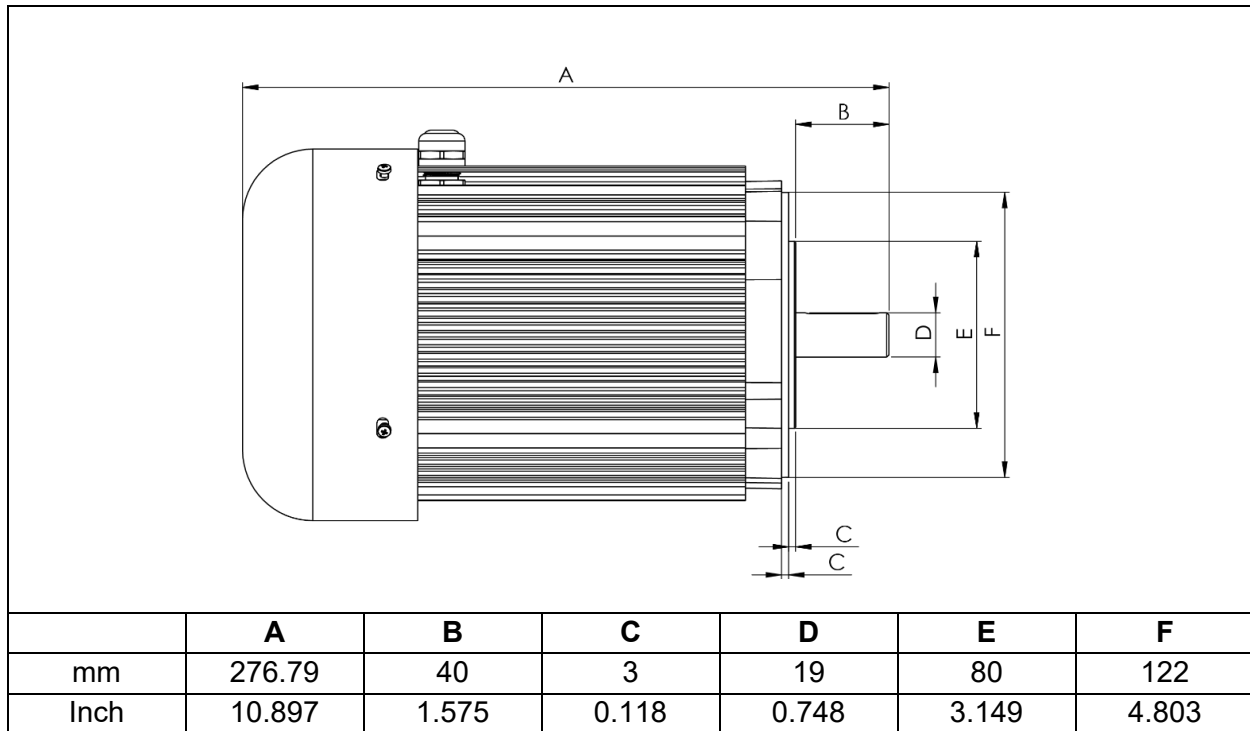


## MOTOR SHAFT DIMENSIONS – NEMA 56C

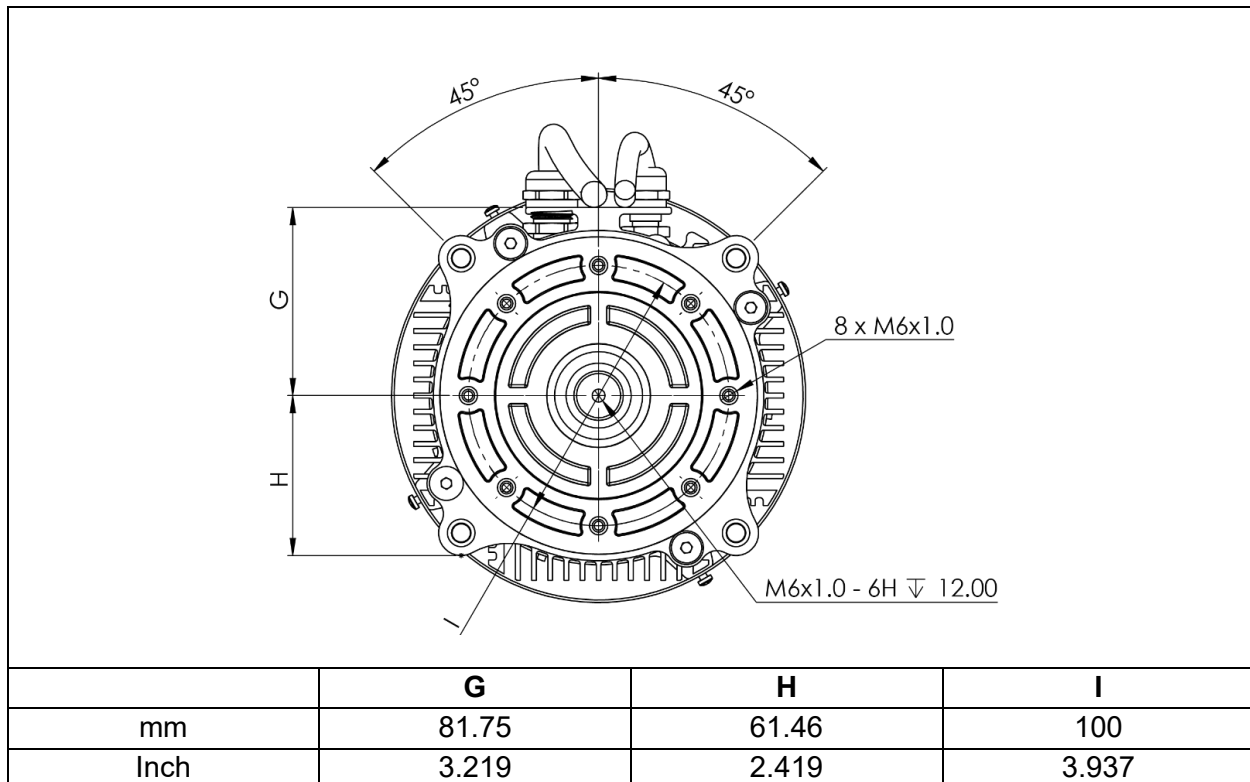


	<b>J</b>	<b>K</b>	<b>L</b>
mm	4.78	15.87	13.14
Inch	0.188	0.624	0.517

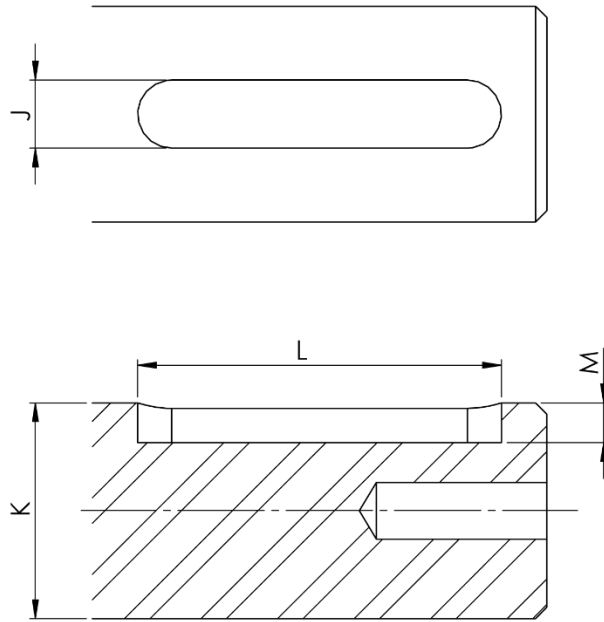
## OVERALL DIMENSIONS – B14 80



## MOTOR MOUNTING AREA – B14 80



## MOTOR SHAFT DIMENSIONS – B14 80



	<b>J</b>	<b>K</b>	<b>L</b>	<b>M</b>
mm	6	19	32	3.5
inch	0.236	0.748	1.2598	0.138

## OVERVIEW

The Striatech integrated electrical drive system contains the Striatech motor with the Rotor Position Sensor (RPS), the drive control board and the Human-Machine Interface (HMI). The control board, RPS, and HMI are the control system of the drive. The motor is connected to the control board by six power wires and RPS cable.

The control board contains power input devices - input rectifier, power factor corrector with the DC link reactor, three-phase inverter and the control circuit based on the 16-bit microcontroller.

The HMI contains the interface board, the LCD and keyboard. The interface board is based on the STM32 microcontroller and connected with the control board through the insulated serial interface.

Both microcontrollers have flash program memory. The interface board microcontroller also contains the EEPROM memory in order to change and store the drive parameters. The control system has been specifically designed for control flexibility and to provide optimal drive performance

## SPECIFICATIONS AND FEATURES

**Motor Type:** Switched Reluctance Motor

**Nominal Output Power:** 750W (1 HP)

**Input Power:** 115V / 240V

**Input Power Frequency:** 50 - 60 Hz

**Motor Speed Range:** 5 ~ 6,000 RPM\* [100 ~ 3,000 RPM at default]

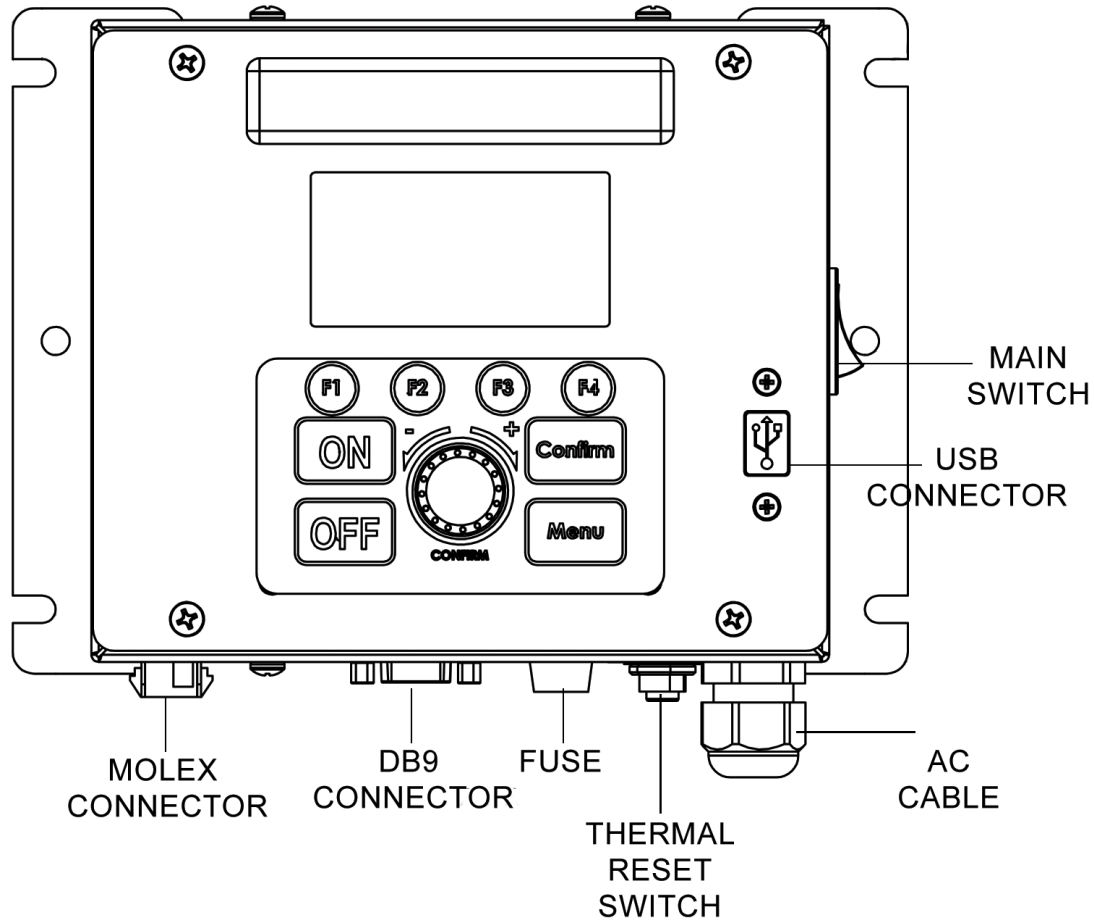
**\*We do not recommend operating under 150RPM**

- Fine speed adjustment with speed dial
- Four Favorite Speed settings with save function by the controller keyboard
- PI speed controller with adaptive coefficients
- Load inertia measurement for improving the PI speed controller coefficients
- Forward and Reverse function
- Nine level acceleration ramp function

\* Note: This motor is not configured to operate e-stop or e-brake accessories.



# HARDWARE AND CONNECTORS



The above image shows the hardware and hardware connectors on the control box.

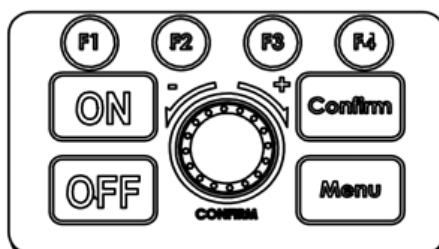
There are two (2) connector ports that connect to the motor:

1. Molex
2. DB9 connector

# HUMAN MACHINE INTERFACE (HMI)

The Human Machine Interface (HMI) provides several options: Run/Stop, motor speed and the direction of rotation. The HMI contains LCD screen and keyboard. The drive parameters can be set by decreasing or increasing values incrementally. Some parameter values can be stored in the EEPROM of HMI.

**Controller Keypad Layout**



## BASIC KEYPAD FUNCTIONS

Function	Press
Start Motor	ON
Stop Motor	OFF
Forward and Reverse	FWD/REV / Confirm
Open Menu	Menu / Cancel
Favorite Speed #1	F1
Favorite Speed #2	F2
Favorite Speed #3	F3
Favorite Speed #4	F4
<b>Menu Functions</b>	
Return to the main screen	OFF
Go to next page in menu	Menu / Cancel
Save setting into memory	FWD/REV / Confirm

## BASIC DIAL KNOB FUNCTIONS

Function	Action
Increase Speed – Coarse adjustment	Turn clockwise
Decrease Speed – Coarse adjustment	Turn counterclockwise
Increase Speed – Fine adjustment	Press and hold then turn clockwise
Decrease Speed – Fine Adjustment	Press and hold the turn counterclockwise
<b>Menu Functions</b>	
Increase Value – Coarse adjustment	Turn clockwise
Decrease Value – Coarse adjustment	Turn counterclockwise
Increase Value – Fine adjustment	Press and hold then turn clockwise
Decrease Value – Fine Adjustment	Press and hold the turn counterclockwise

## CONNECTING TO POWER

The power cord on the motor controller will be a three (3)-prong wire, having a grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with the local electrical codes.

**WARNING!** Improper power connection may cause electrical hazard.

Before connecting the motor controller to the power source, make sure:

1. The motor controller main switch is switched OFF (switch should have the symbol “o” side down)
2. Power source is switched OFF

### IMPORTANT:

To protect the DVR circuit boards (from electrical spikes or surges), you must use a surge protector with the ratings shown in the table below.

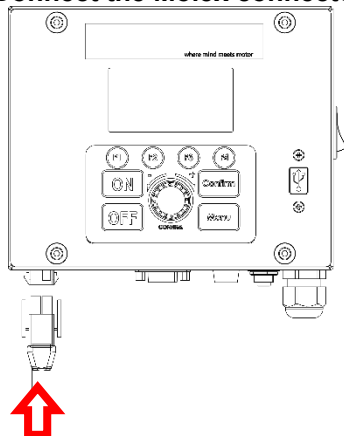
Country	Surge Protector Rating
USA and Canada	15 amps
Other Countries	10 or 15 amps

Some GFI/ RCD outlets may not be compatible with the DVR motor. For the GFI/ RCD outlets to be compatible with the DVR motor, it must have a leak current threshold rating of at least 30mA. If an incompatible GFI/ RCD outlet is used with the DVR motor, a frequent tripping may occur.

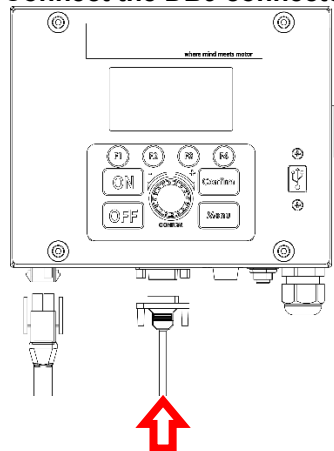
## PREPARING THE MOTOR AND CONTROLLER

The controller powers the motor, so only one power cable is necessary. The Molex Connector and the DB9 Connector must be connected to the controller to operate the motor. The Molex Connector is located on the left and only needs to be plugged in. The DB9 Connector is located on the right-hand side of the Molex connector and requires to be tightened in place with a small flat head screwdriver.

**Connect the Molex connector**



**Connect the DB9 connector**



# ADJUSTING THE MOTOR SPEED

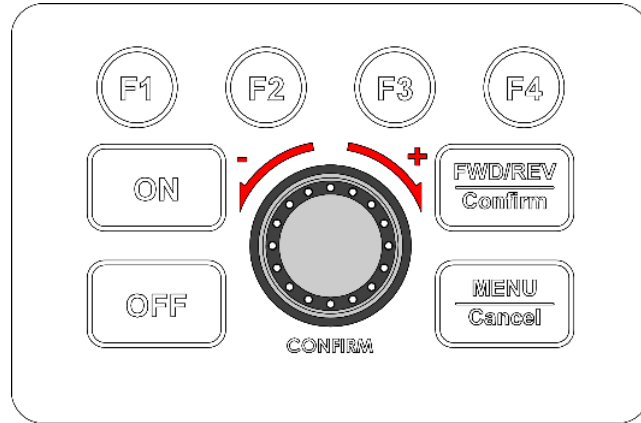
Always use the speed knob to adjust the motor speed (whether the motor is running or not).

## To increase set speed:

Rotate the knob clockwise

## To decrease set speed:

Rotate the knob counterclockwise

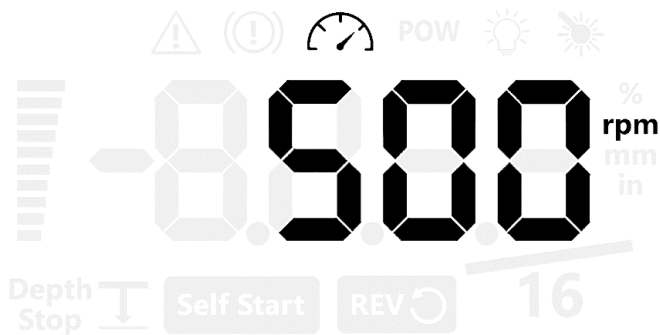


Press and turn the speed knob for a fine speed adjustment. The fine speed adjustment will allow you to change the set speeds in the increments shown in the table below:

Speed Range	Coarse Adjust	Fine Adjust
0 – 500	+/- 25 rpm	+/- 5 rpm
500 – 1000	+/- 50 rpm	+/- 5 rpm
1000 – 1600	+/- 50 rpm	+/- 10 rpm
Over 1600	+/- 100 rpm	+/- 25 rpm

# TURNING THE MOTOR ON AND OFF

The motor can be turned on at any time when the controller is showing the home screen.

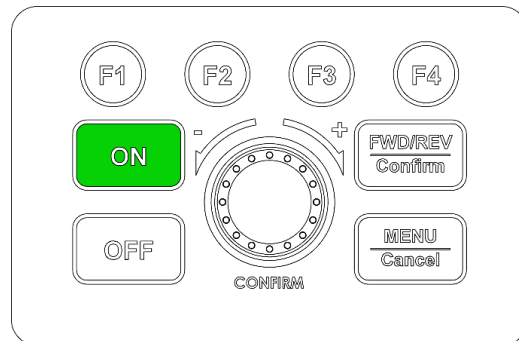


## Motor Controller Home Screen

## TURNING THE MOTOR ON

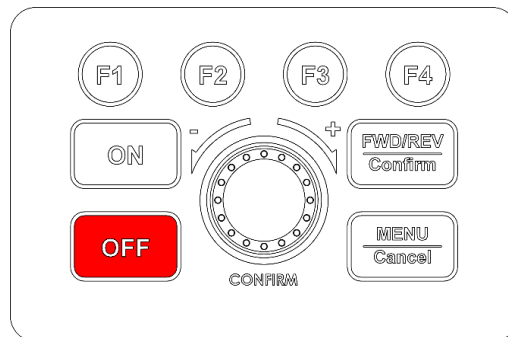
Press **<ON>** to turn the motor on while the controller is on the home screen.

Ensure to select the appropriate speed before turning the motor on when anything is attached to the motor shaft.



## TURNING THE MOTOR OFF

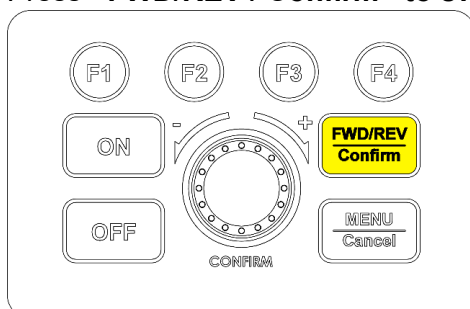
Press **<OFF>** while the motor is running to stop the motor.



## SWITCHING BETWEEN FORWARD / REVERSE

The DVR motor can run in Forward or Reverse to suit its application. The motor should not be running when changing direction.

Press **<FWD/REV / Confirm>** to switch between Forward and Reverse.



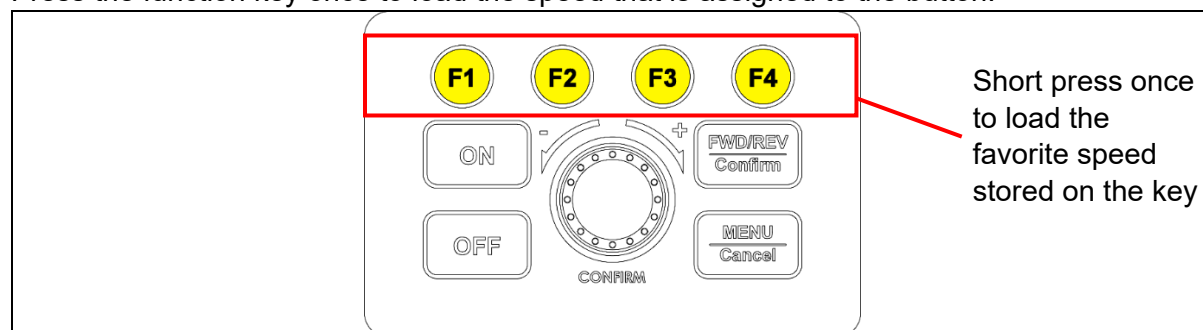
Reverse icon indicates the motor is in Reverse Mode

# FAVORITE SPEED

A favorite speed can be set on each of the function buttons (F1 - F4).

## LOADING SET FAVORITE SPEED

Press the function key once to load the speed that is assigned to the button.



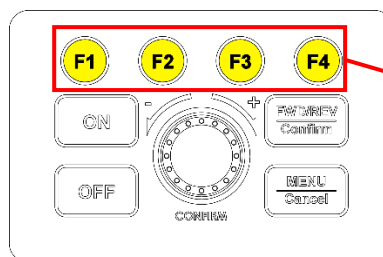
## ASSIGNING SPEEDS AS A FAVORITE SPEED

Ensure the motor is not running when assigning favorite speeds.

Set RPM to desired value and long press the function key to which you would like to assign the speed.



1. Set the RPM to desired value.



2. Long press the function key that you would like to assign the speed.

**Note:** If the current motor set speed is equal to the assigned value, the LED will light up.

The default speed values assigned to the function keys are shown on the table below:

F Key	Initial Values
F1	250 rpm
F2 (Default)	500 rpm
F3	1,600 rpm
F4	2,500 rpm

# MENU

There are four (4) main menu functions contained in the HMI software:

1. Acceleration Ramp
2. Power Display
3. Minimum Speed (Low Speed Limit)
4. Maximum Speed (High Speed Limit)

The menu above can be accessed anytime regardless on whether the motor is running or not.

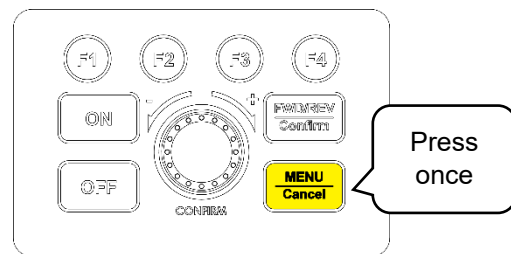
## ACCELERATION RAMP

The Acceleration Ramp controls how fast the motor reaches its set speed. There are nine (9) levels to the Acceleration Ramp. Level one (1) will provide the slowest response and level nine (9) is the fastest response.

At Acceleration Ramp level 1, the motor will take longer to reach its set speed compared to Acceleration Ramp level 9.

### ACCESSING THE ACCELERATION RAMP FUNCTION

Press the **<Menu / Cancel>** key once while on the home screen



A text of "AccL" will be shown on the screen briefly, and the screen will change to screen where it displays a single number.

The number shown on the screen indicates the current set Acceleration Ramp level.

Here, it is showing level 9.

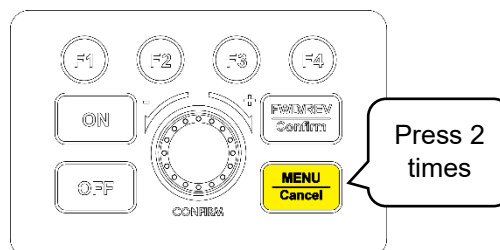


## POWER READOUT

The power readout function will display the load that is applied onto the motor in real time. Power readout is given in percentage (%) of the motor capacity.

### ACCESSING THE FUNCTION

Press the **<Menu / Cancel>** key **twice** while on the home screen to access the acceleration ramp setting.



A text of “POW” will be shown on the screen briefly and the screen will change to a screen where it will display the sensed motor load.



When there is no load on the motor, only horizontal bars will be shown (motor is not running).





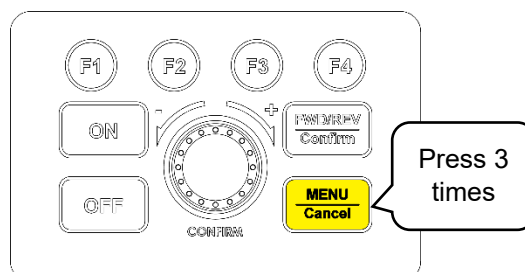
# MOTOR SPEED LIMIT

Maximum and minimum motor speed limits can be set on the motor. This function will limit the speed range which the motor can be set.

## ACCESSING THE FUNCTION

Press the **<Menu / Cancel>** key **three times** to access the lower speed limit (minimum motor speed).

Press the **<Menu / Cancel>** key **four times** to access the higher speed limit (maximum motor speed).



A text of “**L.SPd**” or “**H.SPd**” will be shown on the screen (for a brief moment) depending on whether you are setting a lower (**L.SPd**) or higher (**H.SPd**) speed limit.

The first two screenshots show lower speed limit set to 200rpm. The set speed limit value will be shown on the screen after the text.



In these bottom two screenshots, it is showing it set to a high speed limit of 3,000 rpm.



# CHANGING SET VALUE OF THE FUNCTION

The set values of the following functions can be modified by the user to fit the motor to their needs:

1. Acceleration Ramp level
2. Lower speed limit
3. Higher speed limit

To change the function values:

1. Enter the function where you would like to change the function values by the steps shown above and wait a moment until the text clears.
2. Alter the numeric value that is displayed on the screen by rotating the control knob.

## To increase value:

Rotate the knob clockwise

## To decrease value:

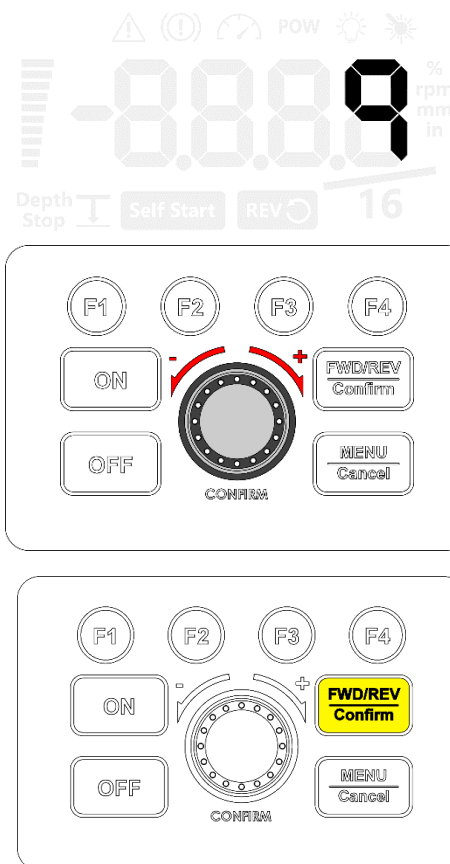
Rotate the knob counterclockwise

3. Press **<FWD/REV / Confirm>** key after the value has been altered to the desired value to save the changes.

An electronic melody will be played to notify the altered value has been saved.

## Note:

Alternatively, the value will be saved by pressing **<Menu / Cancel>** key multiple times until the controller screen return to the home screen.

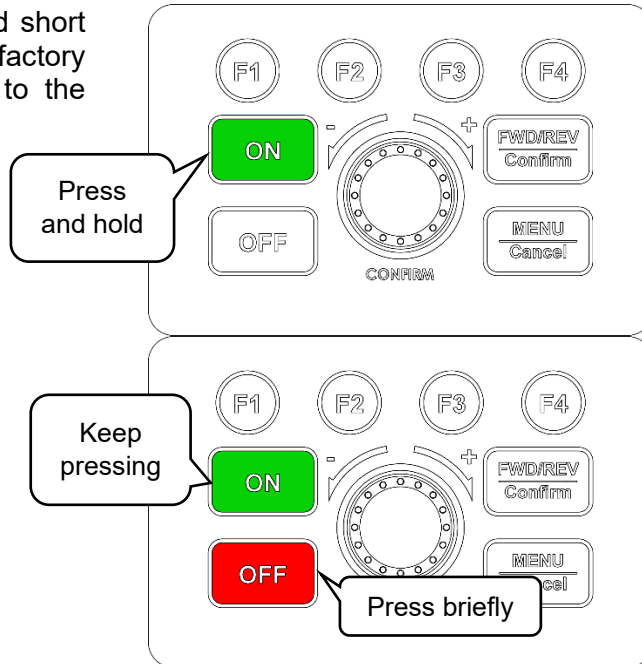


The table below shows the default values and available selection range for each function:

Parameter	Label	Default Value	Min	Max
Acceleration	"AccL"	9	1	9
Minimum Speed	"L.SPd"	100	5	-
Maximum Speed	"H.SPd"	3000	-	6000

# FACTORY RESET

Press and hold the **<ON>** button and short press the **<OFF>** button to perform a factory reset to reset all parameters back to the default values.



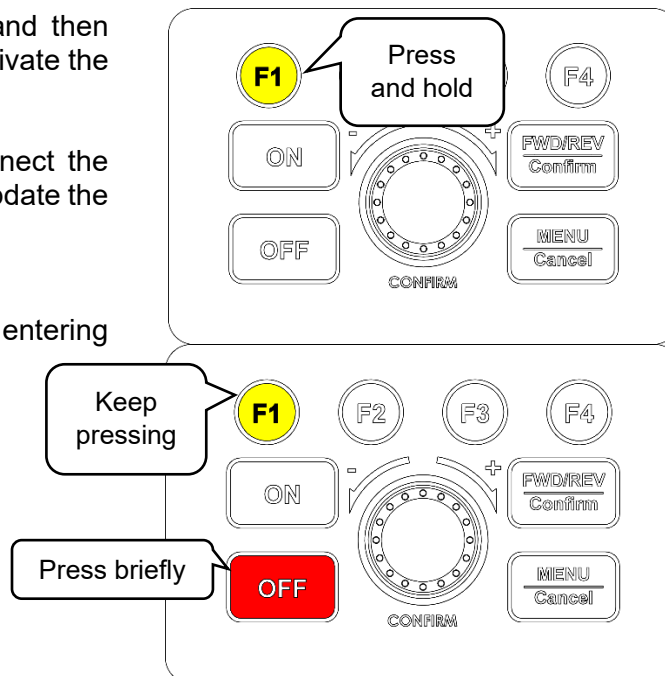
# USB MODE

Press and hold the **<F1>** button and then short press the **<OFF>** button to activate the USB mode.

USB mode allows the user to connect the DVR controller to a PC in order to update the firmware.

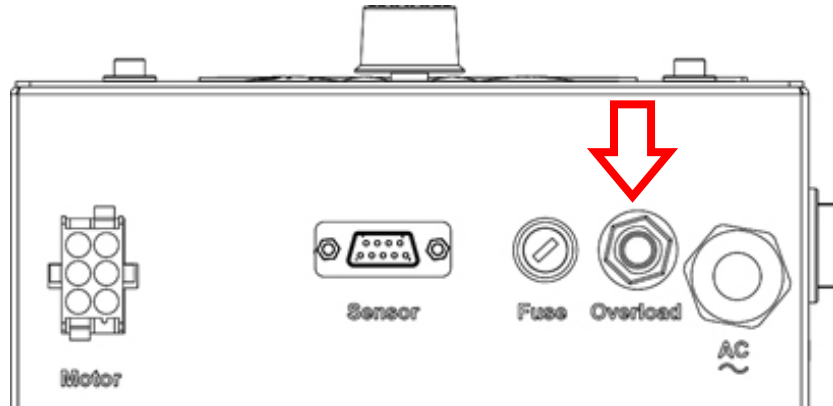
**Note:**

The screen will not change when entering USB mode



# THERMAL RESET SWITCH

The thermal reset switch is next to the DB9 switch. The thermal reset switch is a circuit breaker for when the controller runs too hot. The switch will automatically pop out if the controller heats above the temperature threshold. When the thermal switch is triggered, the motor will come to a complete stop and turn off.

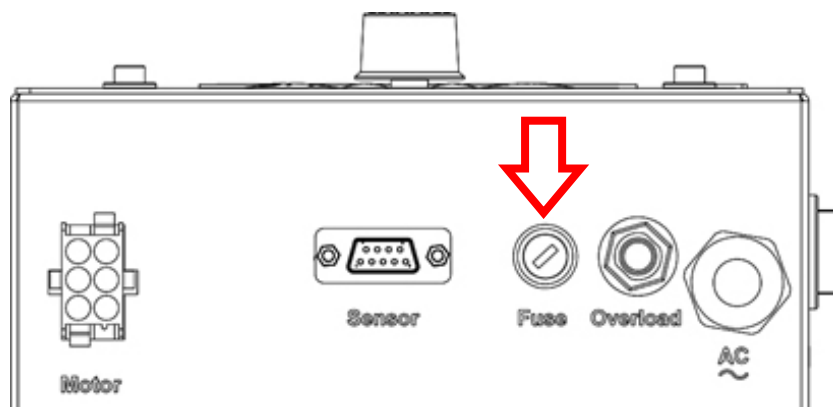


**Press the thermal reset switch in completely when triggered**

# FUSE REMOVAL

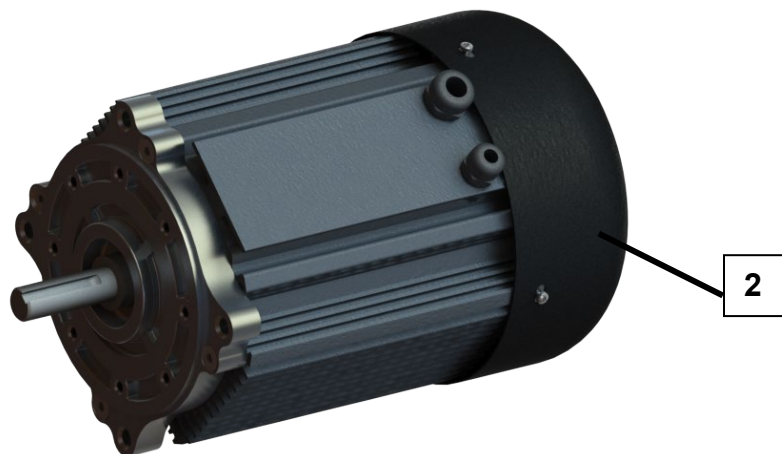
If required, the fuse can be taken out by using a flat head screwdriver.

**Insert a flat head screw driver in the slot and press in. Rotate counterclockwise. The fuse case will pop out.**



## STANDARD EQUIPMENT

Item No.	Part No.	Description	QTY
1	6808000	Motor Controller	1
2	53018	NEMA 56C 1HP DVR Motor	1 Your specific motor will be included - either 53018 or 53019.
	53019	B14 80 1HP DVR Motor	



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