iS7

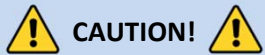### Introduction

This quick start reference is meant to be a supplement to the User Manual included in the VFD packaging. This reference informs the installer of the proper steps for mounting, wiring, and basic programming/operation of the iS7 VFD.

⚠️ **CAUTION!** ⚠️

Improper wiring and operation may result in serious personal injury or death.

Follow the recommended wiring practices suggested in this document as well as the User Manual. The minimum size of the protective earth (ground) conductor shall comply with local safety regulations and applicable codes.

Please review all iS7 related documents included with the product before proceeding with any installation and wiring.

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Step 1 – iS7 Model Number and Mounting

Verify that you have ordered and received the correct VFD by checking the nameplate information. Utilize the example name plate below to assist you with this.

- Model # and Order Code
- Input Ratings
- Output Ratings
- Serial #
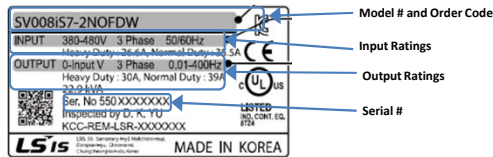
Important!

■ Verify that the input voltage rating matches the voltage source which will be applied to the VFD.

■ Confirm that the output power of the VFD is equal to or greater than the rating of the motor which will be connected.

Mounting

In order to maximize the lifespan of your iS7 VFD, follow the proper installation and environment recommendations. The User Manual contains further details on the exact dimensions and weights of each capacity iS7.

Cover Removal

After mounting, and in order to move onto the wiring step, loosen the captive screw on the terminal cover. Squeeze the tabs and "hinge off" the cover. Squeeze tabs and slide up the wire guide to expose the power terminals. This wire guide can be disposed of if you have purchased a NEMA 1 conduit kit.

Up to 100HP   **Over 100HP**
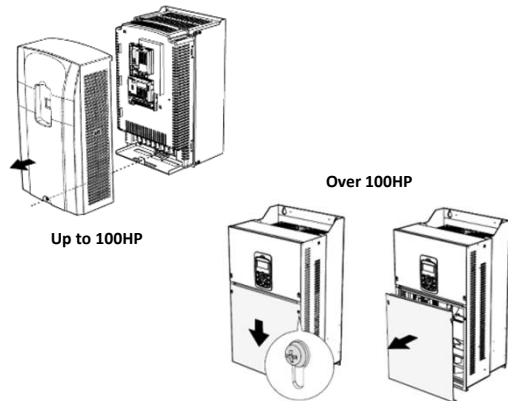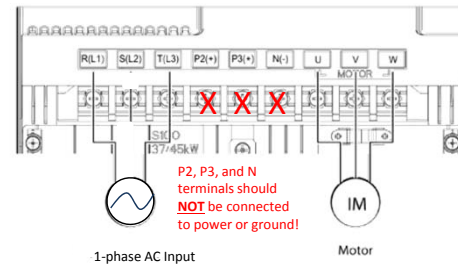

Step 2 – Connect Line and Motor Power

Utilize the below wiring diagrams to properly wire the main power connections to the VFD. **This step should be done with power OFF!** Refer to the User Manual for proper wire gauge recommendations. Be sure to follow good wiring and grounding practices. Follow applicable local codes if needed.
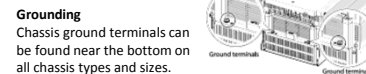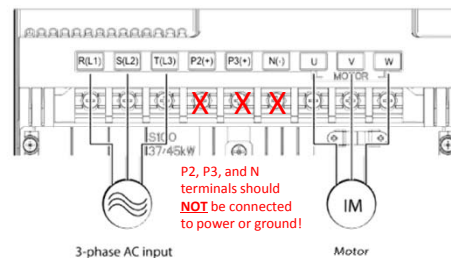
⚠️ **Danger!** ⚠️

Lethal voltages are present. Be sure that all power is turned OFF while performing the recommended power wiring. Reinstall all protective covers on the iS7 before reapplying power

Below is the proper wiring for both Single Phase and Three phase applications. The physical terminal layout will change across the different iS7 capacities and enclosure types. Terminal names (e.g. R, S, T, etc) will remain consistent.

Single Phase Input iS7

P2, P3, and N terminals should **NOT** be connected to power or ground!

1-phase AC Input   Motor

Three Phase Input iS7

P2, P3, and N terminals should **NOT** be connected to power or ground!

3-phase AC input   Motor

Grounding
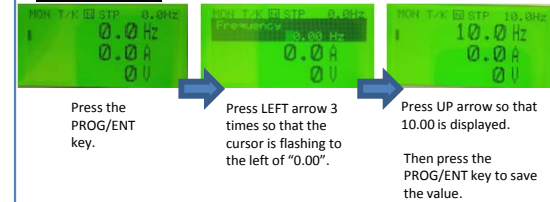Chassis ground terminals can be found near the bottom on all chassis types and sizes.

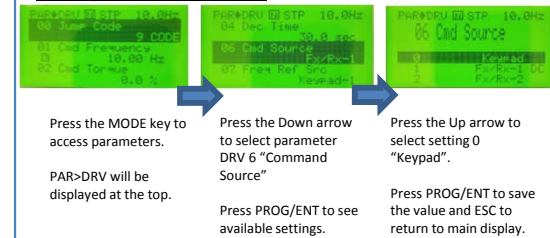## Step 3 – Verify Motor Direction

This step explains how to check motor direction by running the motor at a low speed via the keypad. Verify that the power and motor wiring matches the previous step and covers are installed before applying power.

At first power up, the display will look like below. "0.0 Hz" represents a default frequency reference..

Setting Speed

Press the PROG/ENT key.

Press LEFT arrow 3 times so that the cursor is flashing to the left of "0.00".

Press UP arrow so that 10.00 is displayed.

Then press the PROG/ENT key to save the value.

Setting Command Source

Press the MODE key to access parameters.

PAR>DRV will be displayed at the top.

Press the Down arrow to select parameter DRV 6 "Command Source"

Press PROG/ENT to see available settings.

Press the Up arrow to select setting 0 "Keypad".

Press PROG/ENT to save the value and ESC to return to main display.

Checking Direction

Check that it is safe to run the motor at low speed. When ready, press 🔘 to RUN the motor. The display will briefly show the output frequency of the VFD until it reaches 10Hz.

Look at the motor shaft to verify rotation is correct. Press the 🔘 key to STOP.

If motor direction is **incorrect,** stop the motor with the 🔘 key, and power down the VFD.
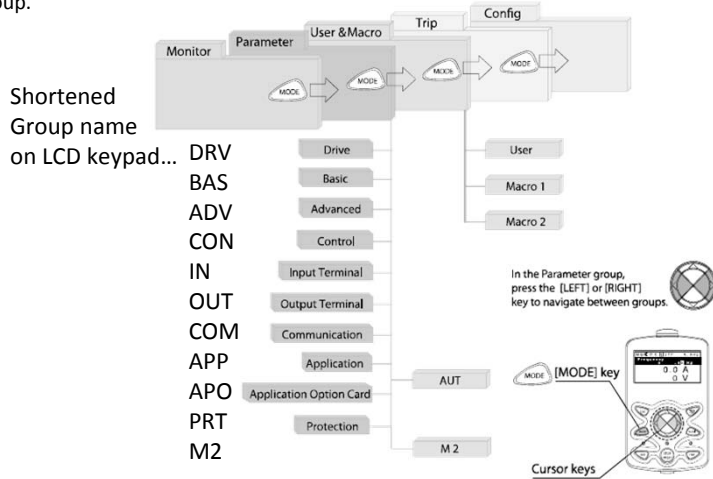
⚠️ Wait at least **5 minutes** to let the VFD capacitors discharge.

Swap any two **output** leads between the VFD and the motor. This will change motor direction. Verify correct rotation via the previous steps.

Step 4 – Keypad Navigation and Parameter Changes

Navigate and select different parameters by using the directional arrows on the keypad while in the PAR Mode (⊗).

From the main screen, the MODE key will change the keypad to display the Parameter (PAR) mode. The PAR mode contains all parameters and monitors. These parameters and monitors are divided into intuitive groups. Pressing the LEFT or RIGHT arrows will move through the different parameter groups. While the UP and DOWN arrows will navigate through the different parameter code #'s in the selected group.

Shortened Group name on LCD keypad…
DRV
BAS
ADV
CON
IN
OUT
COM
APP
APO
PRT
M2

In the Parameter group, press the [LEFT] or [RIGHT] key to navigate between groups.

[MODE] key

Cursor keys

Any of the above parameters settings can be changed by pressing the PROG/ENT key, selecting the new setting with the arrows, and pressing PROG/ENT again to save.

Changing Acceleration Time Example

1. Press the MODE key from the main display to access PAR Mode.
2. In the DRV group, press down to select DRV 03 (Acc Time).
3. Press the PROG/ENT key access the current setting.
4. Use the UP and DOWN arrows to increase and decrease the value.
5. Use the LEFT or RIGHT arrows to move the cursor over to select different digits.
6. Press the PROG/ENT key once the desired value is set. This saves the change.
7. DRV 03 will be displayed again indicating the parameter change has taken effect with the new value displayed.

Parameter Mode, DRV parameter group

Parameter Code and Name

Default parameter setting

Parameter setting adjustment

Parameter setting range

Current parameter setting

PAR▶DRV Ⓝ STP 10.0Hz
03 Acc Time
15.0 sec
0.0~600.0 sec
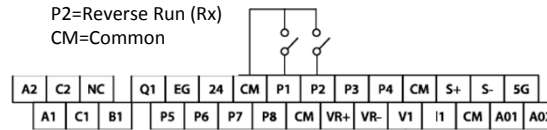D:20.0   C:10.0

Step 5 – Control Wiring

This step shows common wiring examples for both the run command and frequency reference.

Run Command Wiring

2-Wire Control
2-wire control consists of **maintained** run signals. This can be accomplished via toggle switches, relays, jumpers, etc. Default parameters support this operation.
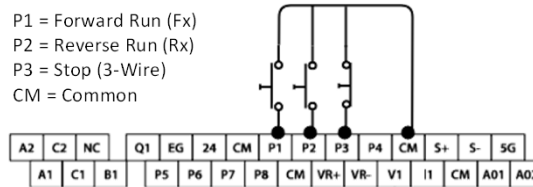
P1=Forward Run (Fx)
P2=Reverse Run (Rx)
CM=Common

| A2 | C2 | NC | | Q1 | EG | 24 | CM | P1 | P2 | P3 | P4 | CM | S+ | S- | 5G |
| A1 | C1 | B1 | | P5 | P6 | P7 | P8 | CM | VR+ | VR- | V1 | I1 | CM | A01 | A02 |

3-Wire Control
3-Wire control consists of **momentary** push buttons to run and stop the VFD. The Forward and Reverse buttons are Normally Open while the Stop button is Normally Closed. Set parameter In67=14 if using P3 (like below) for the Stop button.
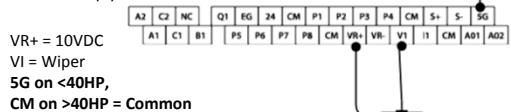
P1 = Forward Run (Fx)
P2 = Reverse Run (Rx)
P3 = Stop (3-Wire)
CM = Common

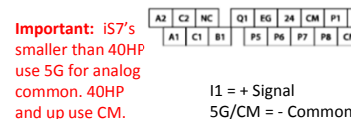| A2 | C2 | NC | | Q1 | EG | 24 | CM | P1 | P2 | P3 | P4 | CM | S+ | S- | 5G |
| A1 | C1 | B1 | | P5 | P6 | P7 | P8 | CM | VR+ | VR- | V1 | I1 | CM | A01 | A02 |

Frequency Reference Wiring

Speed POT Wiring (0-10VDC)
Controlling the VFD with an external speed POT can be accomplished by setting DRV7=2 V1 and wiring like below. For 0-10VDC signals from a PLC or Controller simply wire to V1 and 5G/CM.

VR+ = 10VDC
VI = Wiper
5G on <40HP,
CM on >40HP = Common

PLC or Controller Wiring (4-20mA)
For speed control ov

Important: iS7's smaller than 40HP use 5G for analog common. 40HP and up use CM.

I1 = + Signal
5G/CM = - Common

PLC/4-20mA Source

Step 6 – Basic Setup Parameters

The basic drive and motor parameters are shown on the below table. Set the parameters according to your specific application.

Required Motor Parameters
Set the below motor parameters based on the motor nameplate.

Group	No	Description	Default	Set Options
DRV	14	Motor Capacity	Depends on drive	Depends on drive
BAS	11	Poles	4	2 - 12
BAS	13	Motor Rated Current	Depends on drive	Depends on drive
BAS	15	Motor Voltage	Depends on drive	Depends on drive

HP to kW conversion chart

HP	1/4	1/2	1	1.5	2	3	5	7	10	15	20	25	30	40	50	60	75	100
kW	0.2	0.4	0.75	1.1	1.5	2.2	3.7	5.5	7.5	11.0	15.0	18.5	22.0	30.0	37.0	45.0	55.0	75

Motor RPM to Poles chart

RPM	3600	1800	1200
Poles	2	4	6

Example:
If actual motor RPM is 3450.
Set Motor Poles = 2. *This is due to motor slip. In this example The motor has 150 RPM of slip. (Slip=Synchronous speed-Rated Speed)*

Additional Parameters

Group	No	Description		Default	Set Options
DRV	1	Command Freq		0.00	0 - Max Freq
DRV	3	Acc Time		20	0 - 6000
DRV	4	Decel Time		30	1 - 6000
DRV	6	Run Command	1	Fx/Rx-1	0: Keypad 1: Fx/Rx-1 2: Fx/Rx-2 3: Comm RS485 4: Field Bus
DRV	7	Freq Command	0	Keypad-1	0: Keypad-1 1: Keypad-2 2: V1 3: I1 4: V2 5: I2 6: Comm RS485 7: Encoder 8: Field Bus
BAS	19	Input Voltage		220/380	170 - 480V

*Note: Not all set options are listed above.