SIEMENS

MICROMASTER Vector 6SE32
MIDIMASTER Vector 6SE32

Getting Started

Caution: Before installing and putting this equipment into operation, please read the Operating Instructions Manual for Safety Precautions and Warnings
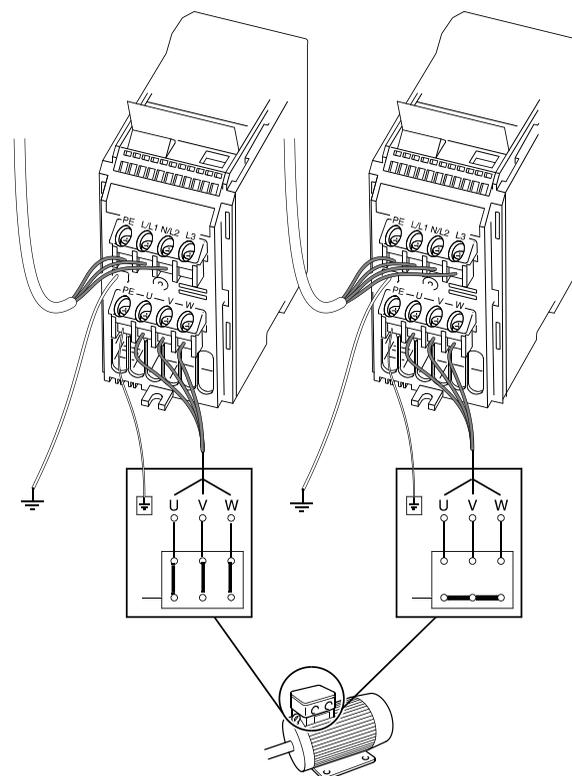

SIEMENS MICROMASTER ....

The MICROMASTER Vector (MMV) and the MIDIMASTER Vector (MDV) are a range of frequency inverters for controlling the speed of three phase AC induction motors.

Step 1   Connecting up the MMV and MDV

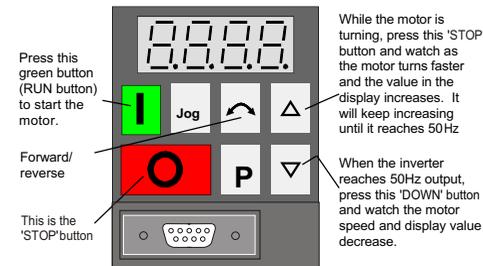| 230V Single Phase	400V Three Phase

Delta connection for 230V 3 phase

Star connection for 400V 3 phase

Note: Motors above 11kW are usually configured 400V Delta / 690V Star.
In this case the motor should be connected in Delta.

MIDIMASTER Vector (MDV)
The MDV electrical installation section of the Operator Instructions Manual shows the position of the terminals used to connect the power and the motor.

Step 2   Getting the motor going

Press this green button (RUN button) to start the motor.

Forward/reverse

This is the 'STOP' button

While the motor is turning, press this 'STOP' button and watch as the motor turns faster and the value in the display increases. It will keep increasing until it reaches 50 Hz

When the inverter reaches 50Hz output, press this 'DOWN' button and watch the motor speed and display value decrease.

At any time, press the 'STOP' button and watch the motor stop.

Step 3   Changing the speed of the motor

The default output frequency of the drive is 5Hz (see **Hints and Tips** to convert this to RPM). This speed will probably be too low for most applications and a speed change may be required. The following steps will allow you to change the preset value of the inverter output to the required speed.

Step / Action	Display
Press the 'P' button to access the parameter settings.	P000
Press the ▲ button 5 times until the display reads P005.	P005
Press the 'P' button to display the current parameter value.	005.0
Press the ▲ button to change the value to 35Hz. (This number can be any number between 0 and 50Hz - default.)	035.0
Press the 'P' button to store the new value.	P005
Press the ▼ button until the display reads P000.	P000
Press the 'P' button to exit the parameterisation procedure. The display will alternate between the output frequency and the frequency set point.	000.0 035.0

The required speed has now been stored.

This method is used to access all parameters.

The drive can now be started by pressing the '**RUN**' button. It will ramp up to the frequency held in parameter **P005** and remain there. To stop the drive press the '**STOP**' button, the drive will then ramp down to 0Hz output.

Default Parameters:

Digital input	Terminal	Parameter	Default
1	5	P051 = 1	ON right
2	6	P052 = 2	ON left
3	7	P053 = 6	Fixed frequency 3
4	8	P054 = 6	Fixed frequency 2
5	16	P055 = 6	Fixed frequency 1
6	17	P356 = 6	Fixed frequency 6
Output Relays			
1	18/19/20	P061 = 6	Fault identification
2	21/22	P062 = 8	Warning active

Fault Codes:

F001	Overvoltage
F002	Overcurrent
F003	Overload
F004	Overheating of motor (PTC)
F005	Inverter overtemperature (internal PTC)
F074	Motor overtemperature by I²t calculation
Other faults, see manual	

For further Technical Support Information, and to submit your suggestions for improvements, see our Web Site:
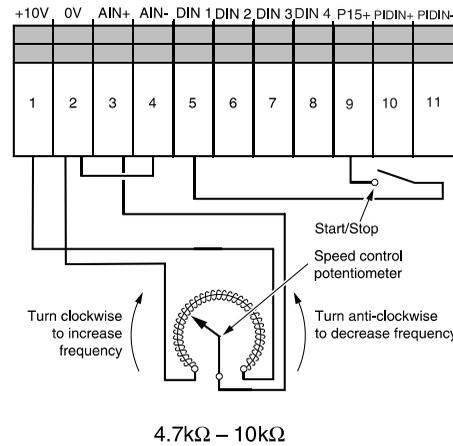
http://www.con.siemens.co.uk

Step 4 Controlling the motor speed with a potentiometer

A potentiometer can be used to control the running speed of the inverter. This is achieved by varying the voltage applied to the analogue input. Connect the potentiometer to the control terminals shown below. Starting and stopping of the motor may be achieved by connecting a switch to the digital input terminals shown.

The following parameter settings are required

P006 Set to 1 to allow analogue input
P007 Set to 0 to enable control via digital input

+10V 0V AIN+ AIN- DIN 1 DIN 2 DIN 3 DIN 4 P15+ PIDIN+ PIDIN-

1 2 3 4 5 6 7 8 9 10 11

Start/Stop
Speed control potentiometer

Turn clockwise to increase frequency
Turn anti-clockwise to decrease frequency

4.7kΩ – 10kΩ

Telling the drive about your motor

To get the best performance from your drive, you should enter information from your motor ratings plate into certain parameters. The following diagram indicates the location of the information and the parameters which should be entered.

P080 P081 P084

3_Mot	1LA7053-2AA10	
IEC 56	Nr. ED510 3053	12 022
IM B3	IP54 Rot KL 16	I.CI.F

50Hz 230/400V Δ/Y 60Hz 440V Y
0.61/0.35A 0.34A
Cos φ0.81 0.12kW 0.14kW
2800 /min Cos φ0.81
VDE 0530 3360 /min
S.F. – 1.15

P083 P082 P085

Commissioning MICROMASTER Vector / MIDIMASTER Vector

Display parameters

Select display via P001

Display frequency, motor current and motor speed
P001
0 = output frequency
1 = frequency setpoint
2 = motor current
5 = motor speed (RPM)

Basic parameters

Ramp-up time
P002 0-650 sec.

Ramp-down time
P003 0-650 sec.

Frequency setpoint
P006
0 = digital
1 = analog
2 = fixed frequency
3 = digital setpoint addition

Keypad control
P007
0 = disable 1 = enable

Parameter protection
P009
0 = only P001-P009 can be altered
2, 3 = all can be altered.

Motor parameters

Nominal rating plate motor power factor
P080 0.00-1.00

Nominal rating plate frequency for motor
P081 0-650Hz

Nominal rating plate speed for motor
P082 0-9999 RPM

Nominal rating plate current for motor
P083 0.1-300.0A

Nominal rating plate voltage for motor
P084 0-1000V

Nominal rating plate power for motor
P085
0-250kW

Motor current limit
P086 0-250%

Automatic calibration
P088

Frequently used parameters

Minimum motor frequency
P012
0-650Hz

Maximum motor frequency
P013
0-650Hz

Automatic restart after mains failure
P015
0 = disable 1 = enable

Start on the fly
P016
0 = disable 2 = enable

Analogue input P023
0 = 0-10V/0-20mA,
1 = 2-10V/4-20mA,
3 = -10V to +10V

Fixed frequency operation
P041-044
P046-049
0-650Hz

Input terminal function
P051-055, 356

Selection relay output
P061, 062

DC injection braking
P073 0-200%

Pulse frequency
P076
See Operator Manual

Control mode
P077
See Operator Manual

Continuous Boost
P078 0-250%

See Operator Manual for other parameters

Hints and Tips

- The direction of rotation of the motor can be reversed during commissioning by changing over two of the output connections on the inverter, or by pressing the Forward/Reverse button.

- Parameters **P000** to **P009** can always be read or set. Access to all other parameters is controlled by the contents of **P009**. The factory default value is '0' which only allows access to **P000** to **P009**. Changing its value to '3' allows all parameters to be accessed permanently. See Operator Manual for the function of other values of **P009**.

- In case there are problems with the parameter settings and you wish to start again, change **P944** to '1'. This will reset to the default settings.

- The value displayed in **P000** is the output frequency of the inverter, this is the default setting but it can be changed by altering the value in **P001**. For example, changing **P001** to a value of '5' will cause the inverter to display the RPM of the motor in **P000**. See the Operator Manual for other settings of **P001**.

- The default value (0) of parameter **P006** ensures that the drive runs at the frequency set in **P005**. In order to control the output frequency by an analogue input signal, the value of **P006** should be set to '1'. For other methods of control using **P006**, see the Operator Manual.

- DIP selection switches are used to select a range of 0-10V or 0-20mA for the analogue input. See the Operator Manual for more information.

- An **F002** fault is often caused by either too short a ramp time or too much voltage boost. An increase in the values in **P002** will increase the ramp time. Alternatively lower the values in **P078** and **P079** to reduce the voltage boost. Please note that if **P078** falls below '100' (default value for MMV) then the motor may under-perform at low frequencies.

- An **F001** fault is often caused by attempting to stop the motor too quickly - increasing the value in **P003** (ramp-down time) will reduce this possibility.

- If the display flashes during operation, the drive is registering a warning. Check **P931** for the cause.