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## MCS DC30/DC30\_36 SERVO MOTOR DRIVES



Dimension: 9.6 x 8.8 x 4 cm

High Precision, High Velocity, Low Noise, No Resonance, Stability

MCS DC30 is a MOSFET BRIDGE Drives. It based on digital control, voltage control and analogy control technologies. It is 8 layers PCB. Input voltage 24 to 80VDC (DC30) or 24 to 36VDC (DC30\_36). Control of DC motors up to 500W is available. The drives are suitable for use in a wide range of applications with include CNC machine tools, multi axis motion, robotic and general automation.

### Including the below output control modes:

1. Pulse and Direction
2. Velocity control, velocity will not effect by the loading (input voltage 0-5V resolution 0.019V)
3. Position or degree control (input voltage 0-5V resolution 0.019V)

All the control modes available connect RS232 communication port to tune the parameter from the DC30 Drive software.

Including:

- ✧ Backlash value for machinery
- ✧ Direction
- ✧ Output degree ratio
- ✧ Output power
- ✧ Positioning precision
- ✧ Position or degree ratio setting, velocity ratio setting under the Voltage Input mode
- ✧ Multi axis position and velocity control, trapezoidal velocity configuration under the PC Control mode

**Features:**

- PID loop closed internally
- Feedback resolution with encoder line count
- EEPROM configuration allows automatic start up in stand-alone Step, Direction input/output rate setting, Frequency setting
- Serial interface connects to RS232 to tune all parameters
- Opto-isolated fault alarm output (over load, over speed)
- Opto-isolate input pulse & direction
- Lock range +/-5000 pulse following error
- Current loop bandwidth 20kHz
- Max pulse input 200kHz
- Resolution 200-8000 pulse/360 degree
- Smooth rotation
- Independent Reset Input & Power Up Reset
- Increase Independent Err Output
- Loading temperature up to 50°C

**DC30 Specifications**

Power Supply	+24 to 80VDC (DC30_36: 24VDC to 36VDC)
Quiescent Current	100mA
Motor Inductance	At least 1mH
Lock Range	+/-5000 pulse
Feedback	Quadrature TTL Encoder 5V Compatible
Feedback Resolution	X4 Encoder Line Count
Switching Frequency	15-20 kHz
Current Limit	0 to 20 Amps Trimpot Adjustable
Step Pulse Frequency	0 to 300kHz
Pulse Multiplier	1 - 20 times input step rate (option)
Size	9.6 x 8.8 x 4 cm

24 to 36VDC MOSFET No.: IRZ44N

24 to 80VDC MOSFET No.: IR540N

**Please read first before using the DC30 Driver:**

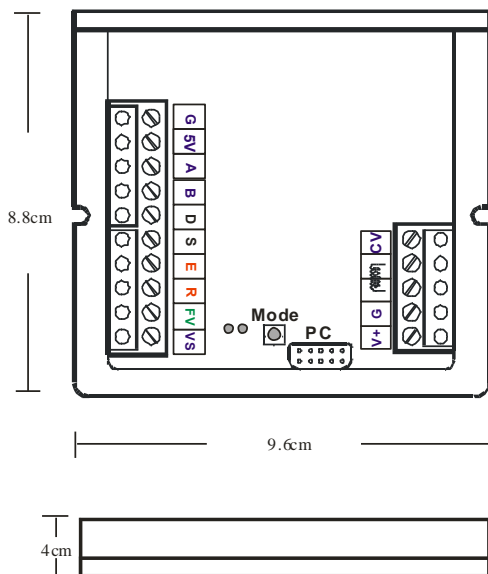
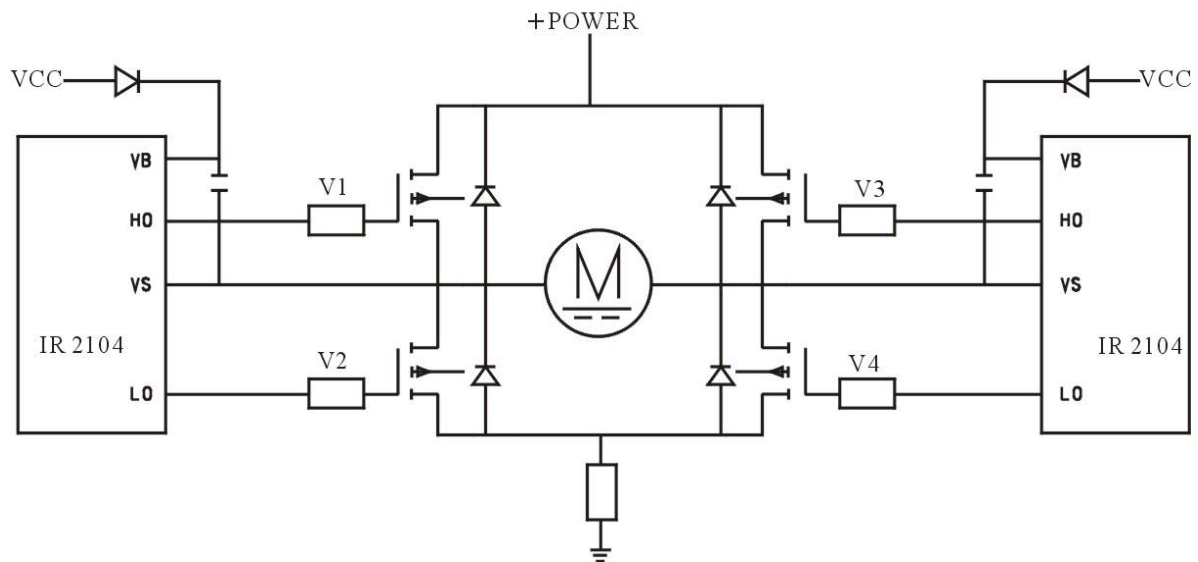
If you are not familiar with DC servo drives please do the following setup instructions with the motor before mounting it on the mechanism.

Before you start, you must have a suitable encoder mounted and properly aligned on the motor. Follow the manufacturer’s instructions on mounting and aligning the encoder if the motor doesn’t already come with one.

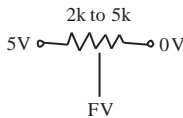
You must have a DC power supply suitable for the motor. The power supply current rating must equal the maximum current you expect to run the motor.

**Circuit layout**

**MOSFET BRIDGE DRIVER**



**DC30/DC30\_36 PINOUT**

TERMINAL G	Encoder 0V
TERMINAL 5V	Encoder 5V
TERMINAL A	Encoder A
TERMINAL B	Encoder B
TERMINAL D	Direction
TERMINAL S	Step
TERMINAL E	Error Output
TERMINAL R	Clear Error
TERMINAL FV	
TERMINAL VS	Input Signal +5V
TERMINAL V+	Power +V (24 to 80V, 24 to 36V)
TERMINAL G	Power Ground
TERMINAL CV	Control 15V to 36V
PC Connector	Connect Computer

**PC CONNECTOR**

DB9 male/DB9 female RS232 cable to PC COM port and DC30 Cable Connector for tune the DC30 drives.

**Mode Button**

Press Mode button for loading the parameter.

**INDICATOR LED**

Mode (Green LED)

Fault (Red LED)

**DC30 Software****Install DC30 Servo Software**


Insert the CD into the computer after it has been turned on and started up.

Double-click **setup.exe** to install DC30 Software.

Follow the onscreen instructions to complete the software installation.

Double click DC30 icon on the Desktop to run the DC30 software

## 1. Select the COM Port

Click the “Tool”  icon  
Select the COM port number



## 2. Select the control mode:

- Pulse and Direction
- Voltage Control (position or degree control)
- Voltage Control (Velocity control)



## 3. Tune the servo motor

- Click one Control and fill the settings.
- Or click “File to DC” icon to open the sample file (\*.dc).  
There are some value settings for reference.
- Or click “Load DC” icon to load the data of the drives into the PC.

## 4. Load the parameter to DC30 Drives/PC

Click “Load DC” icon to load the parameter into the DC30 Drives or load the servo parameter into PC.

Follow the next steps in the sequence they are given.

- i. Connect RS232 cable (DB9 male/DB9 female cable to PC COM port and DC30 Cable Connector)  
Or use USB to RS232 cable to transfer
- ii. Turn on DC30 power supply  
The Mode LED will be flicker a few seconds.  
Until the Mode LED stop flicker.
- iii. Press DC30 Mode Button, Mode LED will be ON.
- iv. Load the parameter to DC30 Drives/PC

**Important: Turn off the power for plug in or take out the cables. Otherwise it will damage the drives or the computer.**

5. Save new parameters into DC30 drives

After load the parameters, the screen will display the “Save Data” icon.

If change the parameters and need to save into the DC30 drives, press “Save Data” icon.

6. Save File

Click “Save File” icon to save the parameter into the file.

*If loading parameter is not successful, it will display “Connect fail” or “Operation valid only when the port is opened.” message.*

*“Connect fail” - The cable is not connected. Connect the RS232 cable into DC30 connect cable.*

*“Operation valid only when the port is opened.” - The COM port number is invalid. Change the COM port number.*

