

Step Motor Controllers SMC35A and SMC35B

- Compact step motor controller up to 6A RMS (8.5A peak)
- Indexer and driver in one single unit
- 1½-axis controller for controlling 2 motors from the same program
- Special modes for applications involving dispensing/labelling
- Extremely fast start/stop reaction times
- Programmed via the well-known Windows MotoWare software
- Can be used with all 2 or 4 phase step motors with 15 - 7.5 - 3.6 - 1.8 - 0.9 degrees per step
- Selection of mini-step resolution via software
- Advanced "all digital" with built-in μ -PLC
- Encoder inputs for monitoring position and "stall" of motor
- Stores up to 15 errors
- CE approved. Low EMI
- 2 analogue inputs and 1 analogue output 0-5VDC



- User outputs can supply up to 0.7Amp per channel so external relays can be avoided
- Positioning range: -2.1 billion to +2.1 billion.
- Multi-point control so 1 master SMC35 can send data to up to 31 slaves, e.g. SMI30, SMC35, DMC10 and AMC10/12
- Multi-tasking system with facility for changing velocity, acceleration, outputs, etc., while motor running
- 2 models. SMC35A 3A or SMC35B 6A with JVL-bus
- Precise current control down to 0.0 Amp. in 64 steps
- Large velocity range 0 til 2,000,000 pulses/sec.
- Connection of up to 32 indexers on same RS232/485 interface bus
- Absolute/relative positioning
- 11 inputs, 8 outputs, end-of-travel inputs, high speed counter/encoder inputs
- All I/O monitored by LEDs
- Pluggable screw connectors
- Can be mounted on a surface
- Electronic gear can be coupled in/out



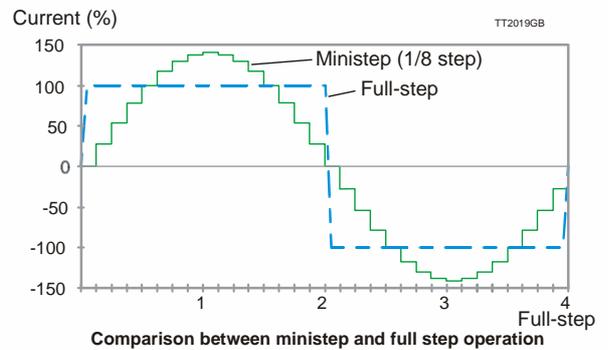


Description

SMC35 is the new step motor controller from JVL, with built-in m-PLC and 11 inputs and 8 outputs. The Controller offers high torque, high velocity and high resolution in order to solve the most demanding applications in the industry. Programming of the Controller is accomplished from a PC using JVL's Windows-based software MotoWare[®], which ensures quick and easy set-up. 2 built-in microprocessors ensure true multi-tasking with change of velocity, acceleration, outputs, etc., while the motor is running. In addition, the Controller includes advanced timers, counters and interrupt facilities so that any task can be solved. An encoder input enables motor position and "stall" of motor to be detected so that corrective measures can be taken if required. An extra pulse-/direction output for an external step or servo

driver enables 2 motors to be controlled by the SMC35 (not simultaneously.) The SMC35 Controller offers fast 20kHz switching, recirculating digital current control, anti-resonance circuitry, and software selection of current, step resolution, velocity, etc. 40kHz switching is also possible, for example if a disc step motor is used. The Controller is protected against short-circuiting of motor phases and outputs. It offers facilities for the selection of mini-step resolution, where each mechanical full-step is divided into many fine small steps (1, 2, 4 and 8 mini-steps per full step). This gives better motor operation at low speeds, lower noise, resonance-free operation and finer resolution.

Via a fieldbus interface, it is possible to connect additional equipment such as keyboard/display modules, extra I/O modules, etc. The Controllers are also characterised by their facility to be controlled either via an RS232/485 interface, or via the general inputs in conjunction with a program sequence previously downloaded and stored in the Controller memory. All inputs and outputs are optically isolated and are protected against overload.

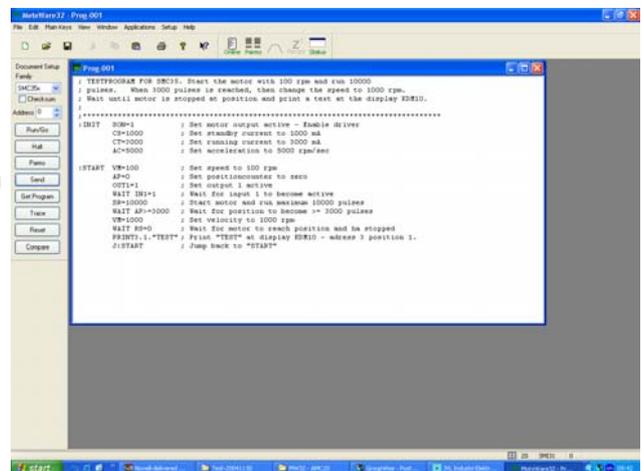


Programming and use with MotoWare[™]

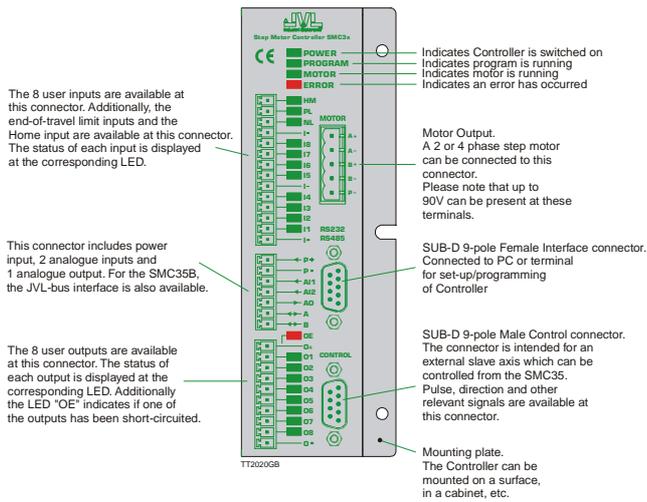
Programming of the Step Motor Controller is easily accomplished using the Windows-based programming software MotoWare[®]. The Controller program is written in a very simple, BASIC-like programming language and several controller programs can be opened and edited at the same time. Each program is saved in a separate disk file which can be opened and closed as required. An advanced "Trace" function enables monitoring of program

execution on the PC screen. This feature is very useful for running in machines, etc. MotoWare is supplied on a 3½" diskette and easily installed on a PC with Windows 95/98/2000/NT. Only ½ - 1 Mbyte of available disk space is required, plus an available

COM port for connection of the Controller.



Connections and Indicators

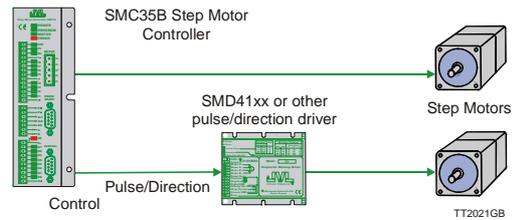


Program Example

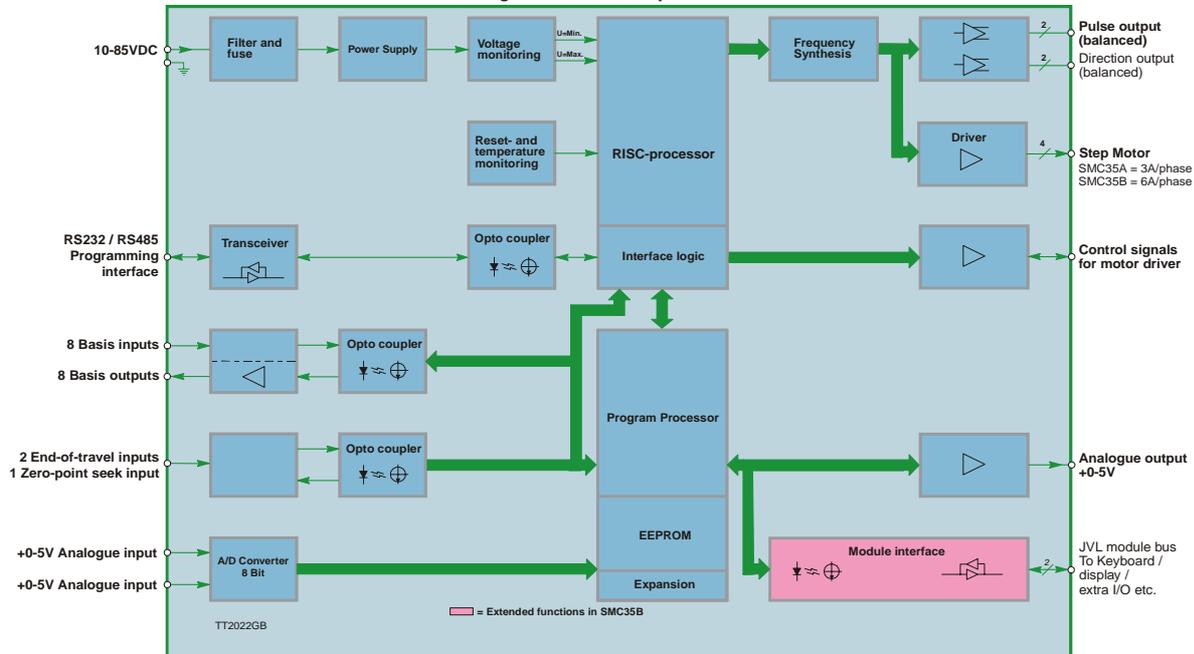
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WAIT IN1 = 1 ;Wait for Input1
OUT1 = 1 ;Activate Output1
SR = 10 000 ;Run motor 10 000 pulses
WAIT RS = 0 ;Wait until motor is stopped
OUT1 = 0 ;Deactivate Output1
D = 100 ;Pause 1 sec.
J0 ;Jump to start of program
    
```

1½ Axis Control

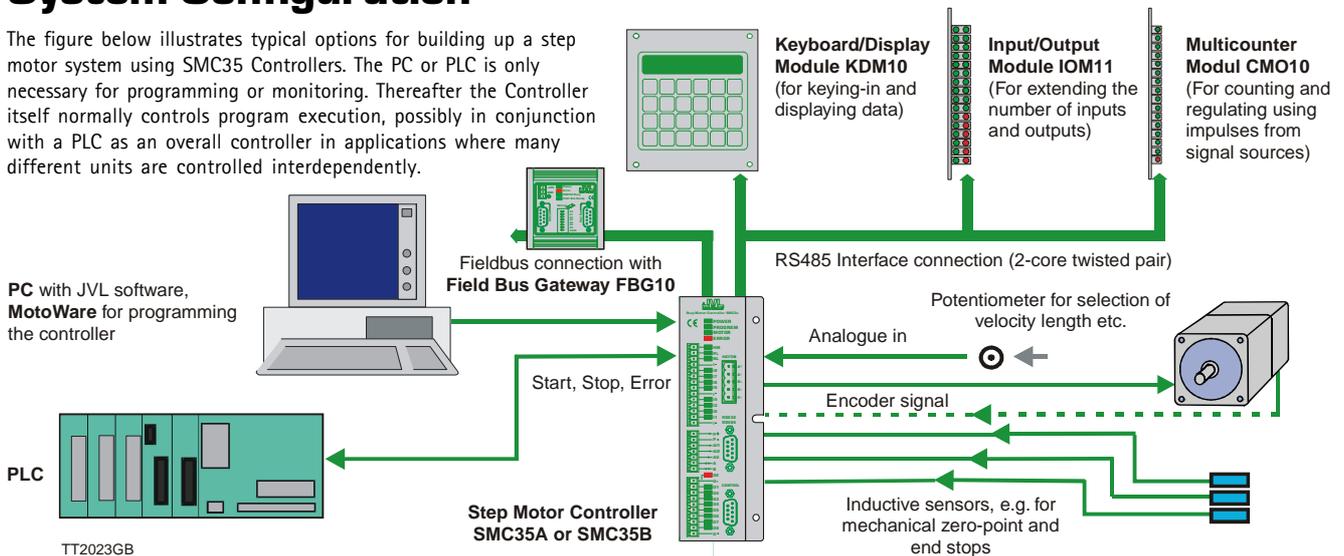


Block diagram of SMC35 Step Motor Controller



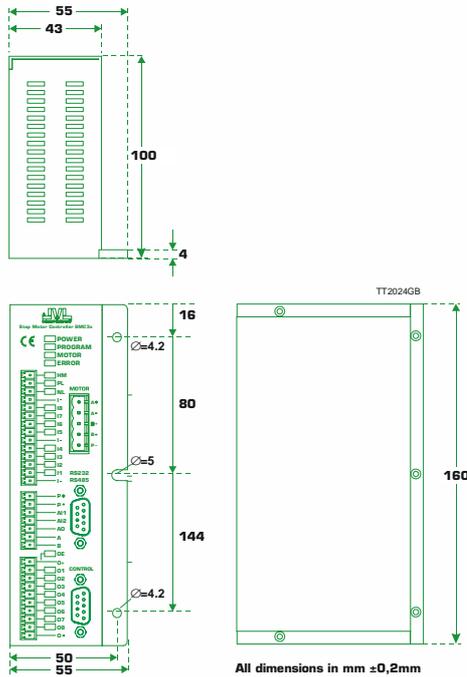
System Configuration

The figure below illustrates typical options for building up a step motor system using SMC35 Controllers. The PC or PLC is only necessary for programming or monitoring. Thereafter the Controller itself normally controls program execution, possibly in conjunction with a PLC as an overall controller in applications where many different units are controlled independently.



SMC35A and SMC35B - Step Motor Controllers

Physical Dimensions



Technical Data

Description	Min	Typ.	Max.	Units
Supply				
Supply Voltage	20		85	VDC
Power Consumption (without motor)		5		W
Motor Connector				
SMC35Q	0		1.5	ARMS
SMC35A	0		3	ARMS
SMC35B	0		6	ARMS
Current resolution 6bit	0		64	levels
User Inputs (PNP)				
Input Impedance		1.5		kOhm
Logic "0"	-1		2.5	VDC
Logic "1"	4.5		30	VDC
User Outputs (PNP)				
Supply voltage	8		28	VDC
Loaded current			700	mA
Analogue Input				
Input voltage (nom.)	0		5	VDC
Input impedance		10		IOhm
General				
Operating temp.	0		45	°C
Weight		590		gram

Step resolution:

200, 400, 800, 1600 Steps/rev.

Encoder input: 0-100 kHz A and B channel.

I/O: CW/CWW end-of-travel, Home input, error output, 8I, 8O, 2AI, 1AO

Protection: Short-circuit protection between phases, between + and phase and between - and phase.

Voltage overload protection. Reverse voltage protection.

Temperature protection.

Short-circuit protection of user outputs.

Communication: RS232/RS485. 9600 or 19200bit/s. Address 0-255.

Acceleration: Linear acceleration with possibility for changing acceleration while motor running.

Step accuracy: ±0 step or ± 0.0833'

Positioning range: -2.1 to 2.1 billion steps

Velocity: 0- 2mill. pulses/sec

User memory: 230 32-bit registers or 460 16-bit registers which are stored in EEPROM

Program Memory: max 2000 lines (7Kbyte).

Accessories

Description	Type
Keyboard/Display Module	KDM10
Input/Output Module	IOM11
Multicounter Module	CMO10
Field Bus Gateway	FBG10
Power Supply 80V/200W	PSU80-2
Power Supply 80V/400W	PSU80-4
Interface cable (9-pole)	RS232-9-1
Programming Software	MotoWare
Step Motor 0.5Nm	MST230B01
Step Motor 1.2Nm	MST001A
Step Motor 1.5Nm	MST232B01
Step Motor 2.6Nm	MST340B01
Step Motor 3.2Nm	MST341B01
Step Motor 6.5Nm	MST342B01
External step motor driver	SMD41xx

Overview

Model	Amp.	JVL bus	1½ axis
SMC35Q	1.5	Yes	Yes
SMC35A	3	No	No
SMC35B	6	Yes	Yes



JVL Industri Elektronik A/S
 Blokken 42
 DK-3460 Birkerød, Denmark
 Tel: +45 4582 4440
 Fax: +45 4582 5550
 E-mail: jvl@jvl.dk www.jvl.dk

