# The Affordable Compact Servo Solution

#### MELSERVO J2C-S100 – the new single axis programmable servo

With its new servo concept MITSUBISHI ELECTRIC offers an affordable, compact servo solution combined with easy motion programming and additional programmable I/Os. This means all packaged in one amplifier!

# Programming positioning made easy

Continuing in the great tradition and the world-wide acceptance of the J2 series AC servo systems, MITSUBISHI ELECTRIC Electric introduces a amplifier with extended functions: the MR-J2-C-S100 single axis programmable servo.

The MR-J2-C-S100 incorporates all of the advanced features and shares the exact same compact hardware dimensions and footprint of the MR-J2. Combined with powerful new features, this controller is suited for practically any general purpose single axis motion application.

# Easy motion programming capability

Using easy motion program language, the MR-J2-C-S100 can be programmed with up to 60 easy steps.

#### **Built-in positioning**

Positioning can be carried out simply by selecting the appropriate programming number in the amplifier (8 programs). Position, speed, acceleration/ deceleration time and miscellaneous functions can be set using the Windowsbased set-up software.



#### **Complete Compatibility**

The MR-J2-C-S100 series is compatible with the whole MR-J2 servo motor series, cables and peripherals

#### Serial communication and Multi-drop operation

The MR-J2 comes with RS-232C/RS-485 serial communications as a standard feature, enabling users to connect a personal computer or a operator terminal from the MAC E series to the MR-J2-C-100.

Thus positioning operation and Multi-drop operation with up to 32 axes is possible

### Windows-based setup software

The configuration software of the MR-J2-S-C100 allows the user a variety of comfortable functions:

- making positioning programs
- displaying a variety of monitoring data
- performing batch entry
- saving of parameters
- graphical display of load, torque etc.
- performing test operations

## Satisfies global industrial standards

The MR-J2-C-S100 can be used with the confidence of knowing it satisfies global industrial standards, including CE, UL and cUL.



These single axis programmable servo amplifiers are available for motor capacity ratings from 0.05 – 3.5 kW and are designed for 1- or 3-phase power supplies from 200 – 230 V (50/60 Hz).

The motors are available in four different structural shapes ranging from compact to long, with minimum, low, medium, and high mass moment of inertia.

#### The affordable compact servo solution

#### System configuration and connectivity

The Windows-based configuration software can perform motion programming and a variety of monitoring tasks. Program execution can be done by programmable input/output or via serial communication.



#### Multi-drop operation

#### Serial communication operation with RS-485 port

Positioning operation can be carried out by using the multidrop connection of the servo amplifier. Each servo amplifier can be started from the master controller. The RS-485 protocol communication specifications are given, so a program can be created by the user.

Furthermore, monitoring and parameter setting etc., can be handled with the Windows-based set-up software.

# Comfortable operation with MAC E series operation panel

Due to driver for the MR-J2-C-S100 is already implemented in the MAC E series, an opportunity for access and control without the need of an additional controller is given.

Using the range of MAC E series will give the possibility to build up interfaces, for parameterisation, programming and operation, which fulfil the various level of customer demands in comfort and visibility. Besides Fieldbus connection like Profibus DP, additional the new technologies like Internet, e mail, SMS, Fax, are implemented in the MAC E series so that remote controlled positioning solutions could be realised in an easy way.





### Powerfull motion programming

Up to 60 steps of motion programming with 15 simple and powerful commands are possible.

Symbol	Description	Command	Setting range	Unit
SPN	Feed speed (motor speed)	SPN	0 to max.	min⁻¹
STC	Acceleration/deceleration time	STC	0 – 20000	ms
STA	Acceleration time	STA	0 – 20000	ms
STB	Deceleration time	STB	0 – 20000	ms
MOV	Move command	MOV	-999999 - 999999	x 10 <sup>℠</sup> µm
MOVA	Continuous move command	MOVA	-999999 - 999999	x 10 <sup>℠</sup> µm
SYNC	Waiting external signal to switch on	SYNC	_	
OUTON	External signal ON output	OUTON	_	
OUTOF	External signal OFF output	OUTOF	_	
TRIP	Trip point	TRIP	-999999 - 999999	x 10 <sup>℠</sup> µm
COUNT	External pulse counter	COUNT	-999999 - 999999	Pulse
TIM	Dwell command time	TIM	1 – 2000	10 ms
ZRT	Zero point return	ZRT		
TIMES	Program count command	TIMES	0, 1 – 10000	Times
STOP	Program stop	STOP		

#### Positioning

TIMES (100)	100 [time]
SYNC(1)	
STC(100)	100 [ms]
SPN(1000)	1000 [rpm]
MOV(5000)	5000 [x 10 <sup>s™</sup> µm]
SPN(500)	500 [rpm]
MOVA(2000)	2000 [x 10 <sup>s™</sup> µm]
SYNC(1)	
TIM(100)	1000 [ms]
SPN(500)	500 [rpm]
STA(200)	200 [ms]
STB(500)	500 [ms]
Mov(-7000)	-7000 [x 10 <sup>s™</sup> µm]
TIM(500)	5000 [ms]
STOP	

Program count nubers Waiting external signal to switch on Acceleration / deceleration time Motor speed Move command Motor speed Continuous move command Waiting external signal to switch on Dwell time Motor speed Acceleration time Deceleration time Move command Dwell time Program stop

#### Program control (TIMES, STOP)

The TIMES command must be used at the head of the program and the STOP command must be used at the end of the program. If these commands are used elsewhere in the program, an error will occur.

Program no. 4	
TIMES (20)	Program count numbers (A)
SPN(100)	Motor speed
STC(100)	Acceleration / deceleration time constant
MOV(100)	Move command (B)
MOV(0)	Move command (C)
STOP	Program stop

#### Input/output command (SYNC, OUTON, OUTOF)

SYNC, OUTON and OUTOF will not be checked until the command output is executed. Even if the start is on, the motor will not operate until the SYNC command is turned ON.

Program no. 3 SPN(50) STC(2000) SYNC(1) MOV(50) OUTON(1) SPN(100) SYNC(2) MOV(100) OUTOF(1) SYNC(1) MOV(0)	Motor speed Acceleration / deceleration time constant Wait for external signal to switch on (A) Move command (B) Digital output (C) Motor speed Wait for external signal to switch on (B) Move command (E) Digital output (F) Wait for external signal to switch on (G) Move command (H)
MOV(0) STOP	Move command (H) Program stop







### Programming example

### AITSUBISHI ELECTRIC

Designed for just about any single axis general purpose motion applications



Stackers

In stacking applications where linear interpolation isn't required or where only one axis is required, the MR-J2-C-S100 is an ideal low cost choice.



#### **Rotary Tables**

The MR-J2-C-S100 is the ideal product for rotary applications where it is necessary to make quick accurate indexes.



For single axis index applications, the MR-J2-C-S100 with various motor ratings provides a low cost and easy way to provide high speed moves.

Indexers



#### **Press Feeders**

For repetitive feed lengths with easy length changes, the MR-J2-C-S100 is ideal for all roll/press feed applications.

#### Specifications

Sarias	MR-J2							
Selles	10C-S100	20C-S100	40C-S100	60C-S100	70C-S100	100C-S100	200C-S100	350C-S100
Power Supply								
Voltage	1 phase 230 V AC (50/60 Hz)							
	3 phase 200 – 230 V AC (50/60 Hz)							
Voltage range	207 – 253 V A	207 – 253 V AC for 1phase amplifiers, 170 – 253 V AC for 3phase amplifers						
Frequency range	Max. +/- 5%							
Features								
Control system	Sinusoidal PWM control, current control system							
Dynamic brake	mic brake Internal brake integrated							
Safety	Excess current shutdown, regeneration excess voltage shutdown, excess load shutdown (electronic thermal), servo motor overheat protection, encoder error protection, regeneration error protection, insufficient voltage/sudden power outage protection, excess speed protection, excess error protection							
Speed frequency response	250 Hz or more							
Structure	Open (IP00)							
Environment								
Ambient temperature	0 – +55 °C for operation, -20 – +65 °C for storage (avoid freezing))							
Ambient humidity	Max. 90% relative humdity							
Atmosphere	Inside control panel, no corrosive gas, flammable gas, oil mist or dust							
Elevation Max. 1000 m above sea level								
Vibration	Max. 5.9 m/s <sup>2</sup> (0.6 G)							
Weight kg	0.7	0.7	1.1	1.1	1.7	1.7	2.0	2.0

Specifications subject to change without notice. Art. no.: 127744-A, Printed in Germany 02.00 **MITSUBISHI ELECTRIC EUROPE B.V.** FACTORY AUTOMATION

Gothaer Strasse 8Phone: +49 2102 486-0Fax: +49 2102 486-717www.mitsubishi-automation.demegfamail@meg.mee.comD-40880 RatingenHotline: +49 2102 1805 000-765 /-766Faxback: +49 2102 486-485 /-790www.mitsubishi-automation.com