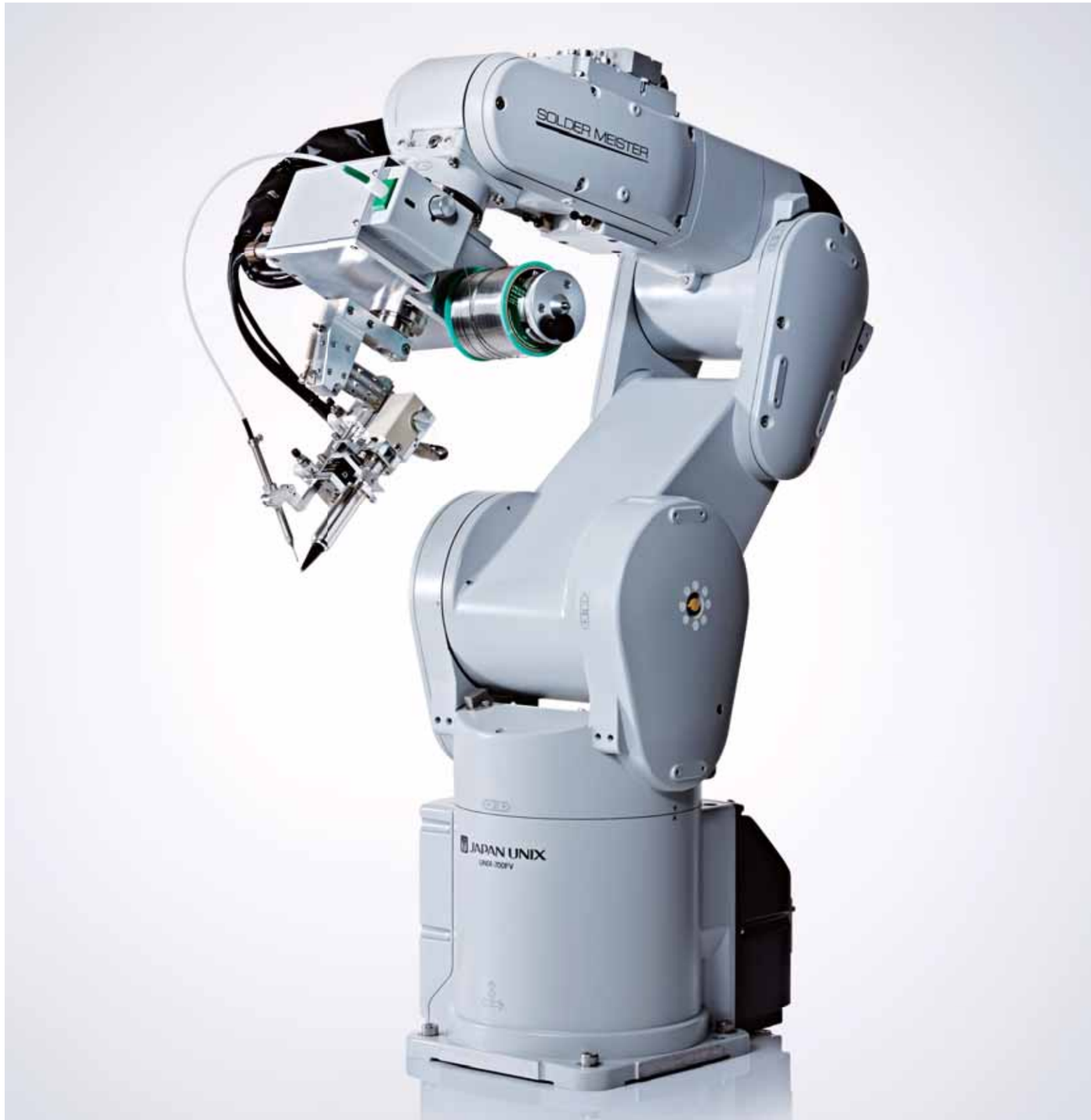
JAPAN UNIX

SOLDER MEISTER®

High-speed Soldering Robot 700F series | Digest vol.1



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Implementation of
high-speed & high-precision soldering
Soldering Robot UNIX-700F series

UNIX-700F Sereies Line Up

UNIX-700FV

**The soldering iron tip can approach from any angle.
This is applicable to complicated soldering operations.**

The 6-axis vertically articulated soldering robot UNIX-700FV※1 is suitable for soldering for odd-shape workpieces into which the soldering iron tip cannot be approached easily. Since the vertically articulated axis is operated, soldering can be performed at a high speed by changing the angle of the head freely. This robot is excellent in high-speed operation at the horizontally-resultant maximum speed of 8,800 mm/sec and is provided with high position repeatability and high rigidity.

※1 Including one solder feed axis

High speed operation 8,800mm/sec | Flexibility 6-axis operation

UNIX-700FH

This robot supports mass production in a balanced format a high-speed circlar are operation.

The UNIX-700F 5-axis SCARA soldering robot※1 offers a fast speed of up to 8,300 mm/sec, and has high repeatability and rigidity. In addition, axis stroke length can be selected from among 350 mm, 450 mm, and 550 mm. It is a versatile robot suited to laser soldering and tip soldering.

※1 Including one solder feed axis

High speed operation 8,300mm/sec | Flexibility 5-axis operation

Robot Set Details (For UNIX-700FV / 700FH)

Robot	Choose from UNIX-700FV /700FH(-35/-45/-55)
Controller	UNIX-700F dedicated controller
Soldering Head	Choose from UMC-087A / UMC-090-BHS / UMC-090-BHL
Solder Feeder	Standard feeder

Iron Tip Cleaner with Vacuum Function	UJC-214W7F
Tube Set	Model number varies depending on solder diameter used. (See P.17)
Teaching Box	R32TB-JU
Heater Cable	Model number varies depending on heater.

Controller

This is the UNIX-700F dedicated controller. It offers integrated built-in robot control, solder feed control and heater temperature control.

Teaching Box

Operate the controller with a single teaching box.

Specifications

		UNIX-700FV	UNIX-700FH-35	UNIX-700FH-45	UNIX-700FH-55
Environmental specifications		General environmental specifications			
Installation posture		On floor, hanging	On floor		
Degree of freedom of motion / Structure		6 (Including solder feed axis) / Vertical multiple-joint type	5 (Including solder feed axis) / Horizontal, multiple-joint type		
Drive system / Position detection method		AC servo motor / Absolute encoder			
Motor capacity		J1 (Waist) : 400W J2 (Shoulder) : 400W J3 (Elbow) : 100W J5 (List pitch) : 100W J6 (List roll) : 50W J7 (Solder feed) : 50W	J1 : 750W J2 : 400W J3 (Z) : 200W J4 (θ) : 100W J7 (Solder feed) : 50W		
Brake		J1·J2·J3·J5·J6 : With brake J7 : No brake	J1·J2·J4·J7 : No brake J3 : With brake		
Arm length (No.1 arm / No.2 arm)		—	125mm / 225mm	225mm / 225mm	325mm / 225mm
Maximum reach radius		—	350mm	450mm	550mm
Operating range		J1 (Waist) : ±240deg J2 (Shoulder) : ±120deg J3 (Elbow) : 0-164 deg J5 (List pitch) : ±120deg J6 (List roll) : ±360deg J7 (Solder feed) : 999.9mm	J1 : ±170deg J2 : ±145deg J3 (Z) : 200mm J4 (θ) : ±360deg J7 (Solder feed) : 999.9mm		
Maximum speed		J1 (Waist) : 420deg/sec J2 (Shoulder) : 336deg/sec J3 (Elbow) : 250deg/sec J5 (List pitch) : 623deg/sec J6 (List roll) : 720deg/sec J7 (Solder feed) : 220mm/sec	J1 : 400deg/sec J2 : 670deg/sec J3 (Z) : 2,400mm/sec J4 (θ) : 2,500deg/sec J7 (Solder feed) : 220mm/sec		
Max. resultant velocity		8,800mm/sec※1	6,900mm/sec※2	7,600mm/sec※2	8,300mm/sec※2
Position repeatability※3		±0.02mm	—	—	—
Position repeatability※3	X-Y Combined	—	±0.01mm		±0.012mm
	J3 (Z) / J4 (θ)	—	±0.01mm / ±0.004deg		
Solder feed precision※4		±0.5% or ±0.3mm, whichever is larger			
Ambient temperature / Supply air pressure		0-40℃ / 0.5MPa ±10%			
Heater power		200W : Cross Heater 250W : Cross Heater LS / L			
Solder diameter		φ0.5-φ1.2 mm (Standard) φ0.6-φ1.0 mm (Clean Cut Type)			
Weight		Approx. 42 Kg	Approx. 39 Kg		Approx. 40 Kg

	Controller
Path control method	PTP control, CP control
Control axes	UNIX-700FV：Maximum 6 simultaneous axes UNIX-700FH-35/45/55：Maximum 5 simultaneous axes
Programming language	Macro step editing/ MELFA-BASIC V
Positional instruction method	Teaching method, MDI method
Number of storable programs / Number of registrable Macro steps	495 programs (Including solder conditions) / 21,000 steps※5
Soldering path type	40 types
Heater temperature control range	Main heater : 200℃-450℃ / Sub heater : 80℃-120℃
Heater standby temperature range	Main heater : 150℃-250℃ / Sub heater : 50℃-100℃
Heater alarm value	±0-100℃ variable
External I/O	General-purpose I/O※6 : 32 point input, 32 point output (expandable to a maximum of 256/256)
	Dedicated I/O※6 : Allocated from general-purpose input / output (1 "STOP" point is fixed)
	Emergency stop I/O : 1 point each (redundant)
	Door switch input / Enabling device input / Mode output / Robot error output : 1 point (redundant)
Interface	RS-422 : 1 port (for teaching box only) Ethernet : 1 port (10BASE-T/100BASE-TX)
	USB : 1 port (for connecting to PC) Extension : 1 port
Ambient temperature / Ambient humidity	0-40℃ / 45-85% RH
Power	Supply voltage : Single-phase, 180-253 V AC Power consumption : 2.0 KVA※7 Power frequency : 50/60Hz
External dimensions (W×D×H) / Unit weight	430 x 425 x 244 mm (Including adjuster / excluding protrusions) / Approx. 24 Kg
Structure / Earth ground	Independent floor type, open structure※8 / 100 Ω or less (D-type ground)※9

※1 R point value when using J1 - J6 axes (see operating range diagram). ※2 Value when J1, J2, and J4 are used. ※3 Please see the standard specifications for details on position repeatability.
※4 Value when standard solder feeder is used. ※5 When recording "MRR4" macro program instructions. ※6 Must specify sink type or source type.
※7 Power capacity is a rated value for normal operation. Please note that this power capacity does not include the inflow of power when the power supply is turned on. The power capacity is an approximation and the guarantee of operation is affected by the input voltage. For the electrical leakage breaker, please use a device that supports inverter products that operates on leakage current for the commercial frequency band (50 - 60 Hz). Leakage breakers sensitive to high-frequency components may cause a trip even at values under the maximum leakage current value.
※8 This controller is for the general environment specifications. ※9 Grounding should be set up by the customer.