JAPAN UNIX

SOLDER MEISTER®

S series | vol.1

www.japanunix.com

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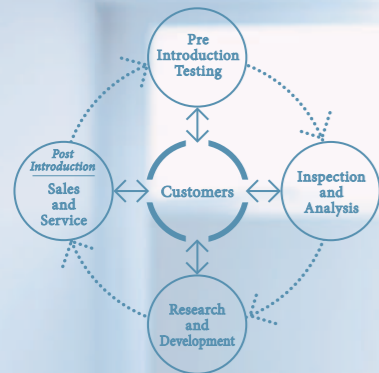
fancort industries, inc.

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Tel: 1-888-fancort (326-2678 Tel: 1-973-575-0610
www.fancort.com

Technology Developing the Future,
One Step at a Time

By applying new ideas today, we hope to bring happiness and surprises to the world.

Taking this feeling to heart, even if the difference means only an improvement of 0.1%,

we continuously strive to research and develop.

And so our technology evolves while we work with our customers

to make their dreams come true.

Pre
Introduction
Testing

Post
Introduction
Sales
and
Service

Customers

Inspection
and
Analysis

Research
and
Development

Soldering Support

At Japan Unix, we provide our customers with
comprehensive support using a system that covers
the full sales cycle of Pre-Introduction and continues
with Post-Introduction/Sales and Service.

Joining the future

UNIX JAPAN UNIX

SOLDER MEISTER®
S series vol.1

JAPAN UNIX DESKTOP SOLDERING ROBOTS

5 STRENGTHS
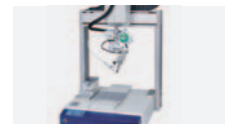
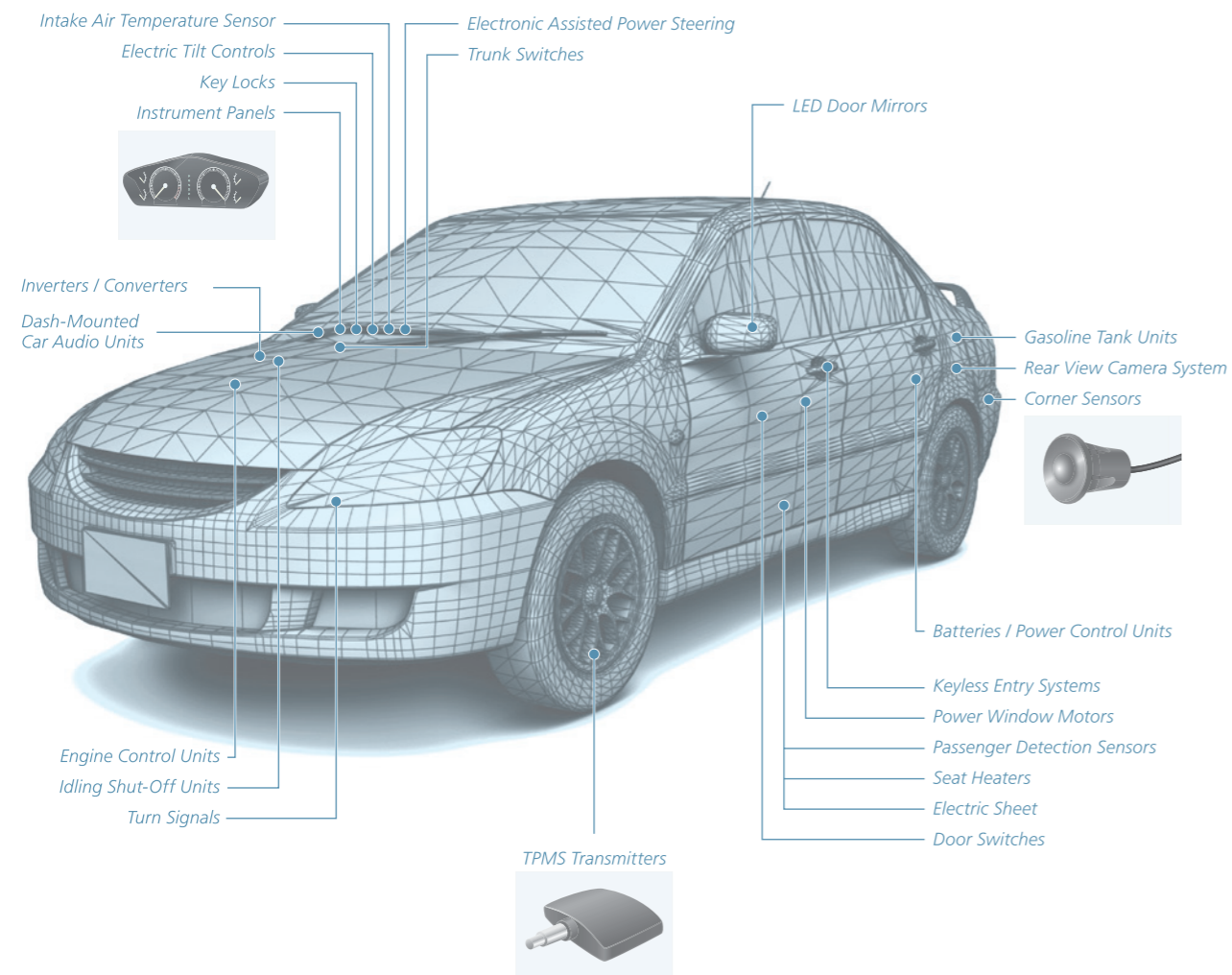UNIX-413S

UNIX-414S

- This catalog reflect the products as of November 2013. The product appearance and
  specifications can change without notice.

- Be sure to carefully read the operating instructions included with the product before
  use.

Desktop soldering robots are used in a wide range of product manufacturing
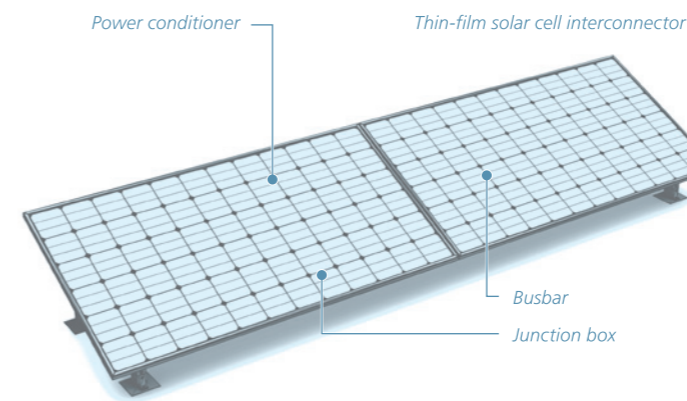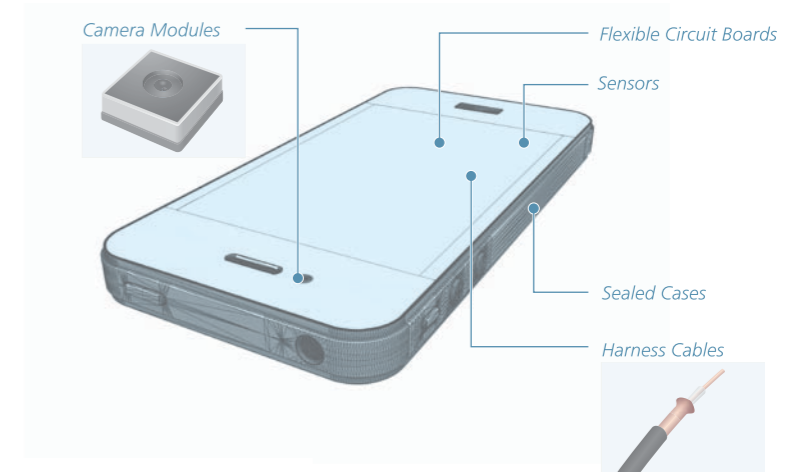
Automotive Electronics

In recent years, modularization has been rapidly advancing. The electronic components in motor vehicles demand safety and high reliability, so the highest level of quality control in soldering is required. Desktop soldering robots are reliable and easy to operate, enabling even soldering beginners to produce expert quality work.

Intake Air Temperature Sensor
Electric Tilt Controls
Key Locks
Instrument Panels

Electronic Assisted Power Steering
Trunk Switches

LED Door Mirrors

Inverters / Converters
Dash-Mounted Car Audio Units

Gasoline Tank Units
Rear View Camera System
Corner Sensors

Batteries / Power Control Units

Keyless Entry Systems
Power Window Motors
Passenger Detection Sensors
Seat Heaters
Electric Sheet
Door Switches

Engine Control Units
Idling Shut-Off Units
Turn Signals

TPMS Transmitters

Smartphone

For smartphone and cellular phone applications, substrate boards are becoming more and more dense and efficient with slimmer, lighter weight designs in high demand. Desktop soldering robots support manufacturing methods suited to a variety of surface mount components and are also widely used for micro-scale soldering.

Camera Modules
Flexible Circuit Boards
Sensors
Sealed Cases
Harness Cables

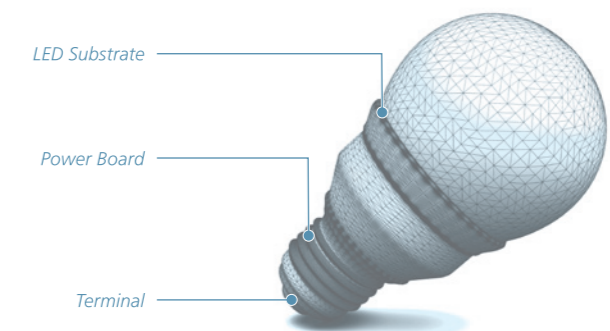Power conditioner
Thin-film solar cell interconnector

Photovoltaics

Desktop soldering robots can even be used for ultrasonic soldering for small solar panels and other products. They are also widely used for items such as junction box assembly and power conditioner PCB soldering.

Busbar
Junction box

LED Terminals

Desktop soldering robots also offer proper component support and are capable of soldering at the appropriate temperature for difficult to solder LED light terminals and power supply PCBs.

LED Substrate
Power Board
Terminal

Greater yields in cellular manufacturing soldering

Benefits of the UNIX-410S series

Dependable and durable

Easy programming

Kaizen Poka Yoke

High-speed soldering
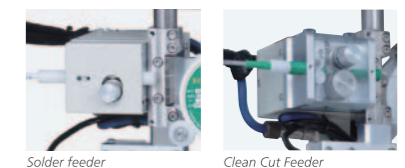
High Reliability soldering

UNIX-413S

UNIX-414S

UNIX-410S Series advantages

Improved soldering quality

Solder Feeder

▌ Encoder detects solder feeding errors.

▌ Incisions are made into solder to reduce solder balls and flux dispersion.※1

※1 Clean Cut Feeder is a standard option.

Solder feeder   Clean Cut Feeder

Roughly 15% reduction in cycle time※2

※2 As compared to previous model

Includes soldering robot programs

▌ Teaching is easy.

▌ Includes solder controller.

▌ Includes a variety of counter functions.

Multiple heaters for different purposes

▌ Two types of high-powered heaters.

▌ Wide variety of soldering iron tip shapes.

Reduced maintenance and downtime

Lock-on Mechanism

▌ Angle block with memory prevents supply position misalignmen.

▌ Features XY adjustment mechanism.

Iron Tip Cleaner

▌ Vacuum-assistance reduces solder scattering during cleaning.

▌ Features air blower nozzle lock-on mechanism.

A wide range of advanced functions

Improved iron tip position accuracy ensures quality

Three-Axis Tip Position Corrector
UCS-410S-SET

▌ Automatically corrects position gap due to iron tip erosion or thermal expansion in two to three minutes.
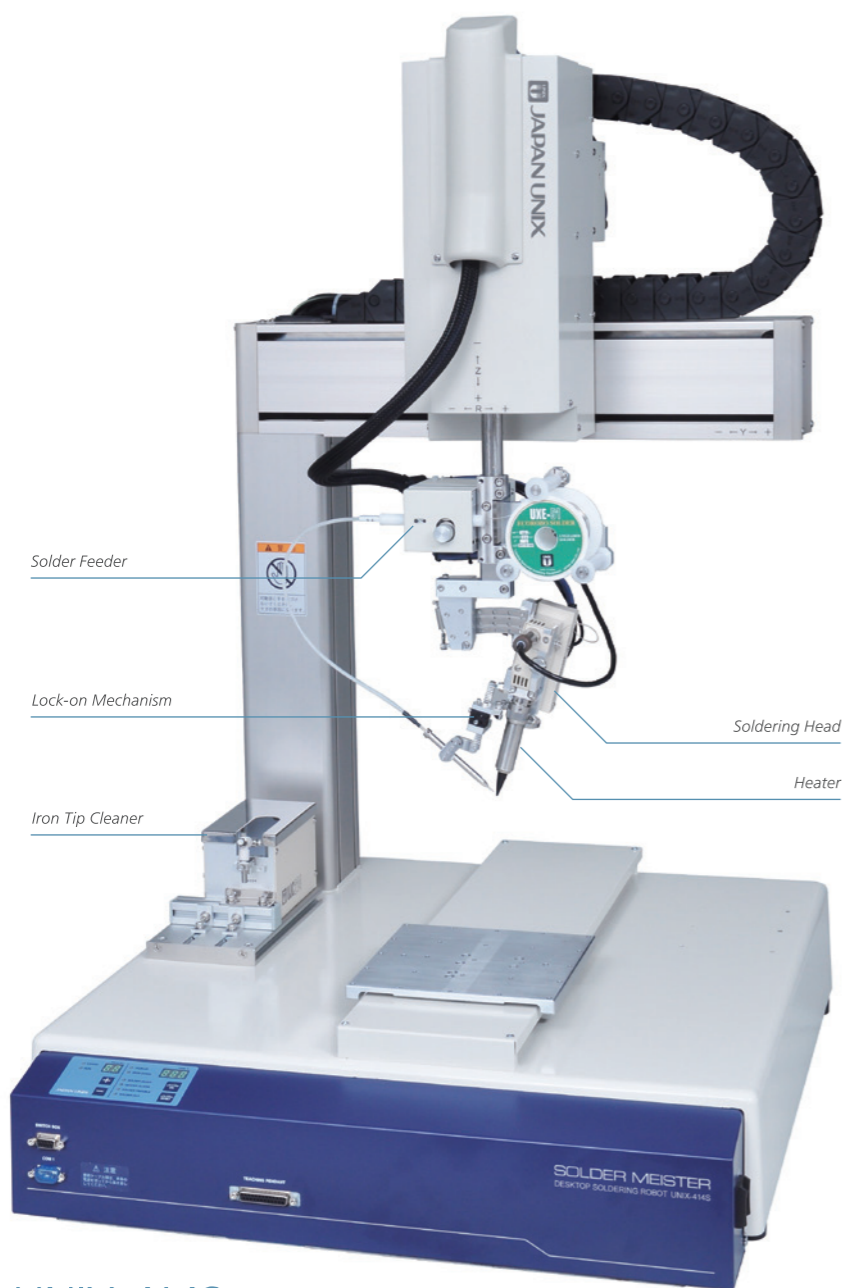
Better cleaning improves soldering quality

Double Brush Cleaner
UJC-217SK5

▌ Cleans using two high-speed rotating wire brushes.

▌ Effective at removing carbonization and other stubborn buildup.

Various model configurations deliver maximum effectiveness

Switch Box

Teaching Pendant

Solder Feeder

Lock-on Mechanism

Iron Tip Cleaner

Soldering Head

Heater

UNIX-414S

UNIX-413S

UNIX-415S
500mm XY axis version also available
(special order)

Robot Set Details (For UNIX-413S / 414S)

Soldering Head	Choose from UMC-087A-AH / UMC-087A-BH
Solder Feeder	Choose from UPM-053 / UPM-053CC
Iron Tip Cleaner with Vacuum Function	UJC-214CW II L
Lock-on Mechanism	Model number varies depending on options. (See P.13)
Tube Set	Model number varies depending on solder diameter used. (See P.14-15)
Switch Box	RK-SWB
Teaching Pendant	RK-TP-R (Cable length is 2m.)
Heater Cable	Model number varies depending on heater.
PC software	USW-RK410SE (English)

Available Heaters

Cross Heater

▍Design maximizes tip heat capacity.

▍Heater and iron tip can be detached and replaced individually.

▍Wide range of tip types.

▍Uses cross-shaped groove to maintain repeatability of tip position.

Cross Heater L

▍Temperature sensor is located close to the end of the tip for improved sensing accuracy.

▍Offers reduced startup time and quick temperature recovery during soldering.

▍Heater and tip can be detached and replaced individually.
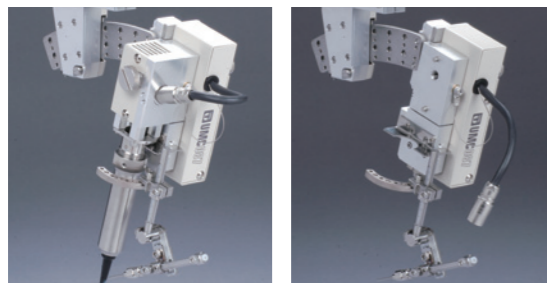
▍Uses V-shaped groove to prevent incorrect tip insertion.

Standard-equipped
with more advanced soldering units

Soldering Robot Heads

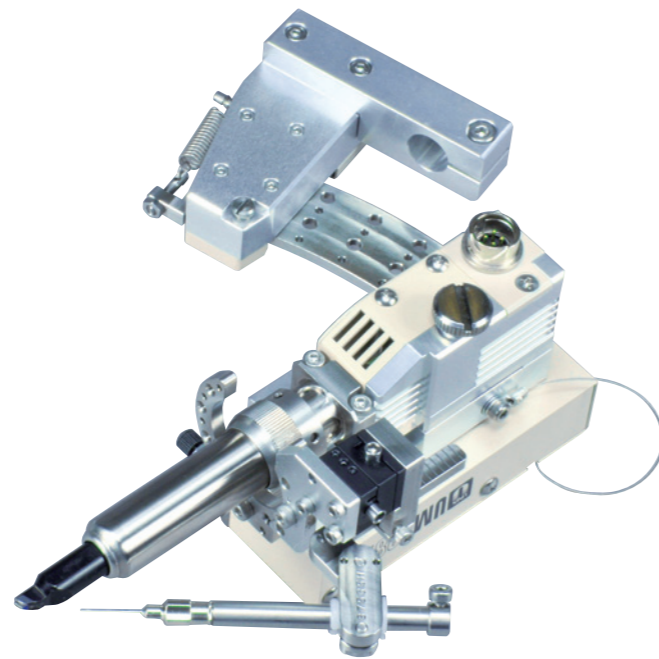**UMC-087A-AH** (For Cross Heater)
UMC-087A-BH (For Cross Heater L)

▌ Select from two types of heaters.

▌ Standard equipped with solder supply lock-on mechanism.

▌ Heater block can be easily detached, and tip and heater can be replaced in approximately one minute.
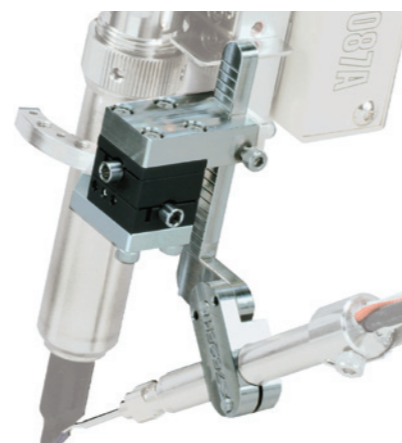
[Heater block]

Attached   *Removed*

Solder Feeder

UPM-053
UPM-053CC (Clean Cut type) Patent pending for

▌ Encoder detects errors such as solder shortage, jamming, and slippage.

▌ Improves solder feeding precision.

▌ Proprietary mechanism enables one-touch solder reel replacement.

▌ Clean Cut accessory available as standard option.

[Clean Cut type solder cross section]

Making an incision into the solder reduces solder balls and flux dispersion by 90% or more.※

※ Clean Cut results will vary according to the solder material used. Some solder materials are incompatible; please contact us for details.

Before cut   *After cut*
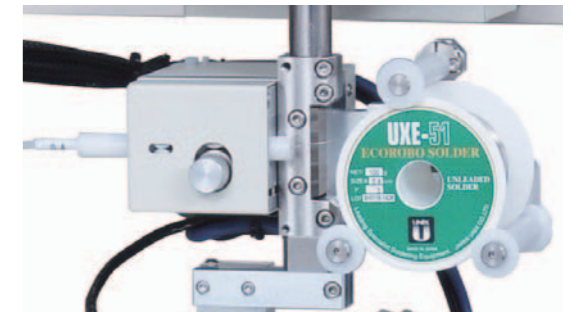
Clean Cut Type

Lock-on Mechanism

▌ Angle block with memory provides stabilization and prevents solder supply position misalignment that can easily occur during maintenance.
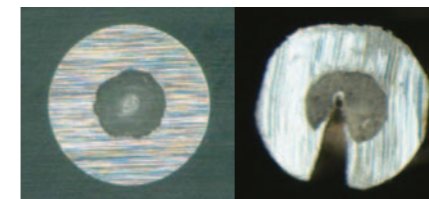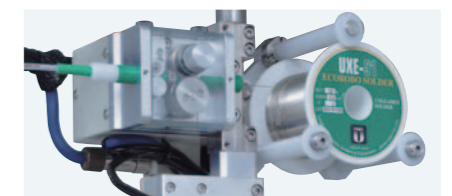
▌ Perfectly maintains the original supply position.

Iron Tip Cleaner with Vacuum Function

UJC-214CW II L

▌ Air blower-style iron tip cleaner.

▌ Vacuum system reduces solder scattering during cleaning.

▌ Air blower nozzle angle adjustment is based on a lock-on mechanism, making angle resetting easy.

High performance options with the latest features

Three-Axis Tip Position Corrector
UCS-410S-SET

▮ An automatic position corrector for the UNIX-410S Series.

▮ Quickly and automatically corrects position gap due to tip erosion and/or thermal expansion.

Double Brush Cleaner
UJC-217SK5

▮ Rotates two wire brushes to remove stubborn buildup on the end of the iron tip.

▮ Effectively cleans carbonization, tin oxides, and other materials that cannot be removed by the standard iron tip cleaner.

Double Heater
SHN-W100

▮ Double heater design improves nitrogen gas preheating.

Digital Thermometer
UNISENSOR-701A

▮ Digital thermometer for tip temperature measurement.

▮ Handheld design makes for easy measurement of installed tip temperature. Ideal for routine temperature management.

Solder Wire Preheater ※
SHN-41S-＊＊

▮ Preheats solder wire to reduce solder balls and flux dispersion due to sudden heat shock during soldering.

▮ Also effective at reducing tact time.

＊＊ = Solder diameter
※Cannot be used with Clean Cut Feeder.

Lateral Slide Mechanism
UMC-087-RL

▮ Slides the soldering head to equalize contact pressure with the work.

Fume Extractor
UAC-2000

▮ Extracts flux fumes during soldering.

▮ Dual filters for removal of fumes.

・Three-level suction adjustment and filter clog sensor.
・Dimensions: W340×D360×H477 (mm) (excluding protrusions)
・Weight: Approx. 18.5Kg

Fume Extraction Duct Set
UAC-9DS-413S/UAC-9DS-414S

▮ Duct for fume extractor that attaches to soldering robot.

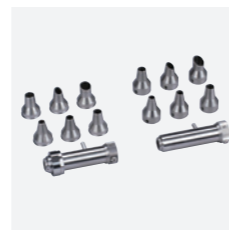・Type varies according to equipment model used.

Nitrogen Gas Generator
UNX-200

▮ Creates a nitrogen gas environment to improve the workability of lead-free solder.

▮ Protection against oxidation and improves spread and wettability.

Iron Tip N2 Cap

▮ Blows nitrogen gas from the end of the iron tip.

A wide range of soldering iron tips

We offer a standard line up of tip shapes for point soldering and linear soldering.

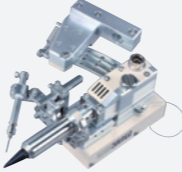・Please contact us regarding our tip shape lineup, special shapes, or other details.

SPECIFICATIONS

	UNIX-413S	UNIX-414S
Product Image		
Number of axes	4-axis simultaneous control	
Range of operation — X-axis (back and front axis)	300mm	400mm
Range of operation — Y-axis (side to side axis)	320mm	400mm
Range of operation — Z-axis	100mm	100mm
Range of operation — R-axis	±360°	
Maximum movable weight (workpiece)	11kg	
Maximum speed (PTP) — X-axis, Y-axis	800mm/sec.（8〜800mm/sec.）	
Maximum speed (PTP) — Z-axis	320mm/sec.（3.2〜320mm/sec.）	
Maximum speed (PTP) — R-axis	800°/sec.（8〜800°/sec.）	
Repeatability accuracy — X-axis, Y-axis	±0.01mm	
Repeatability accuracy — Z-axis	±0.01mm	
Repeatability accuracy — R-axis	±0.02°	
Workpiece size (maximum jig size)	300mm×275mm（X,Y）	400mm×365mm（X,Y）
X-axis table, Space between table and tip (Z-axis direction)	115mm	
Position teaching method	Teaching or value input (MDI)	
Teaching format	Direct teaching via teaching pendant Offline teaching via PC (optional)	
Number of programs	255 programs	
Point memory capacity	Up to 30,000 points※	
Drive system	5-phase stepping motor drive	
Control system	PTP control, CP control	
Interpolation function	3D linear interpolation, 3D circular interpolation	
External interface	RS232C: two channels (PC: one channel, option unit: one channel) RS422: one channel (for teaching pendant)	
External I/O (max.)	Input: 24 points, Output: 24 points	
Simplified PLC function	50 programs, 1,000 steps/program	
Number of solder conditions	255 conditions	
Iron tip temperature control range	200℃-450℃	
Heater alarm value	±5-99℃ variable	
Heater power	200W:Cross Heater 250W:Cross Heater L	
Supported solder diameter	φ0.5-φ1.2（Standard） φ0.6-φ1.0（Clean Cut Type）	
Alarm indicators	Solder feed error, solder shortage warning, heater alarm	
Dimensions (W×D×H)	560×528×928(mm)	584×628×928(mm)
Power supply	AC100V ±10% 50/60Hz 450VA AC115V ±10% 50/60Hz 450VA AC230V ±10% 50/60Hz 450VA	
Air	Dry air, 0.5MPa Maximum	
Operating temperature	0-40℃	
Relative humidity	20 to 95% (non-condensing)	
Weight	38Kg	45Kg

※ The total memory available is shared with total points, point attribute data, point work data, and sequence data. If data is increased, the maximum number of point data memory items will be reduced.

PARTS LIST

Soldering Heads/Heaters

Soldering head model number	Compatible heater name	Compatible heater model number	Compatible tips	Output power
UMC-087A-AH	Cross Heater	100AH-200S-79L	Cross-Bit series	200W
UMC-087A-BH	Cross Heater L	100BH-2510	Cross-Bit L series	250W

Lock-on Mechanism

Product Image	Model number	Solder preheating (○ = yes)	Solder supply angle	Soldering method
	LOS87-7525-XY		25°	Linear solder
	LOS87-7525H-XY	○		
	LOS87-7530-XY		30°	
	LOS87-7530H-XY	○		
	LOS87-7535-XY		35°	
	LOS87-7535H-XY	○		
	LOP87-7535-XY		35°	Point solder
	LOP87-7535H-XY	○		
	LOP87-7540-XY		40°	
	LOP87-7540H-XY	○		
	LOP87-7545-XY		45°	
	LOP87-7545H-XY	○		
	LOP87-7550-XY		50°	
	LOP87-7550H-XY	○		
	LOP87-7555-XY		55°	
	LOP87-7555H-XY	○		
	LOP87-7560-XY		60°	
	LOP87-7560H-XY	○		

・All lock-on mechanism models include an XY adjustment mechanism.

Iron Tip N2 Cap

Product Image	Model number	Remarks
	100RH-N2-CA	N2 nozzle (NZ**) included
	100RH-N2-CA-YZ	N2 nozzle (YNZ**) included

PARTS LIST

Standard Solder Feeder Parts

Solder Feeder Spare Parts

Product Image	Compatible solder feeder	Name	Model number	Remarks
	UPM-053	Entrance nozzle	UPM-053-INZ✽✽	✽✽ = Wire diameter specification; e.g., 05 = φ0.5 φ0.5/φ0.6/φ0.65/φ0.8/φ1.0/φ1.2
		Center nozzle	UPM-053-CNZ✽✽	
		Exit nozzle	UPM-053-ONZ✽✽	

・Solder feeder models UPM-053/UPM-053CC are unavailable for purchase separately.

Solder Supply Components (Standard)

Product Image	Wire diameter	Needle	Needle holder	Tube set	Tube set overall length
	φ1.2	ND-15GP	CL-S-3	PT12S-040	400mm※
	φ1.0	ND-16GP	CL-S-2	PT10S-040	
	φ0.8	ND-17GP		PT08S-040	
	φ0.6	ND-18GP		PT06S-040	
	φ0.5	ND-19GP		PT05S-040	

※Lengths other than 400mm are also available (special order)

Solder Supply Components (High Precision)

Product Image	Wire diameter	Needle	Needle holder	Tube set	Tube set overall length
	φ0.8	SND-10	CL-S-2	PT08S-040	400mm※
	φ0.6	SND-08		PT06S-040	
	φ0.5	SND-07		PT05S-040	

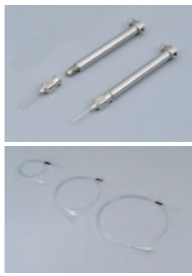※Lengths other than 400mm are also available (special order)

Clean Cut Type Solder Feeder Parts

Solder Feeder Spare Parts

Product Image	Compatible solder feeder	Name	Model number	Remarks
	UPM-053CC	Roller unit	UPM-053CC-RU✽✽	Clean Cut Type Specification ✽✽ = Wire diameter specification; e.g., 06 = φ0.6 φ0.6/φ0.65/φ0.8/φ1.0
		Entrance nozzle	UPM-053CC-INZ✽✽	
		Center nozzle	UPM-053CC-CNZ✽✽	
		Exit nozzle	UPM-053CC-ONZ✽✽	

・Solder feeder models UPM-053/UPM-053CC are unavailable for purchase separately.

Solder Supply Components (Standard)

Product Image	Wire diameter	Needle	Needle holder	Tube set	Tube set overall length
	φ1.0	ND-15GP	CL-S-3	PT10SCC-040	400mm※
	φ0.8	ND-16GP	CL-S-2	PT08SCC-040	
	φ0.6	ND-17GP		PT06SCC-040	

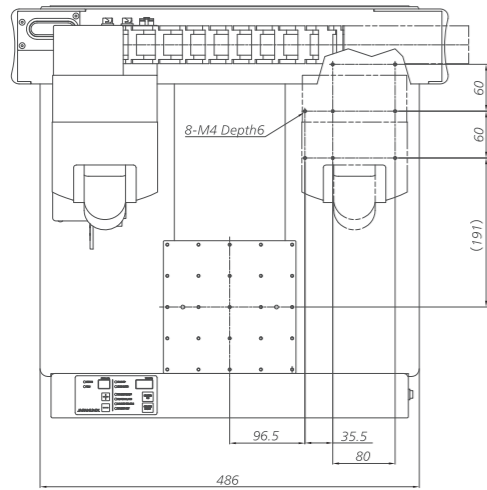※Lengths other than 400mm are also available (special order)
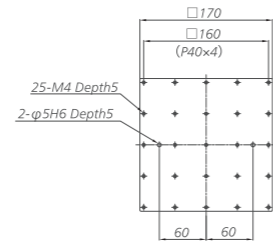
EXTERNAL VIEW DIAGRAM

UNIX-413S

Units: mm

Front view

View from A

96
23
50 (M4 nut slot)

8-M4 Depth6

60
60
(191)
96.5
35.5
80
486

Jig mounting surface (X-axis table)

□170
□160
(P40×4)
25-M4 Depth5
2-φ5H6 Depth5
60
60

Top view

320St (Y)
140 and below
Cable/air tube
100St(Z)
928
490
(160)
37
557
(32)
455
125
560
(65)

Side view
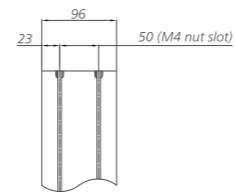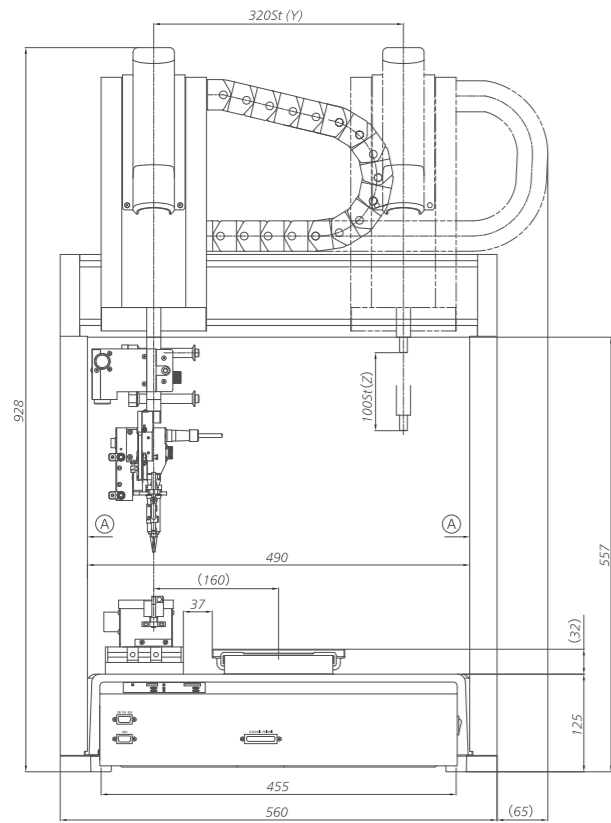
Cable/air tube
Cable/air tube
285
(115)
(58)
(186)
300St(X)
400
528
120 and below
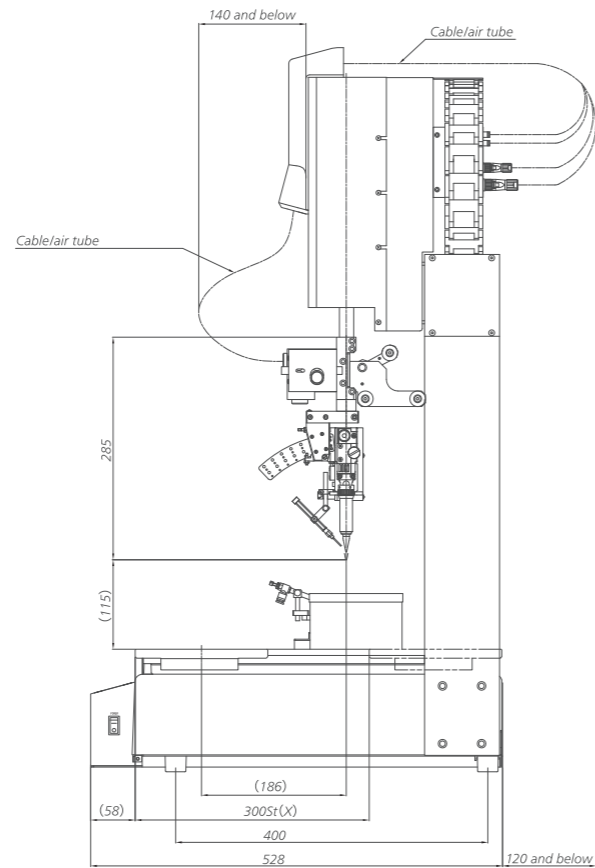
UNIX-414S

Units: mm

Front view

View from A

90
17
50 (M4 nut slot)

6-M4 Depth6

60
60
(251)
145
80
584

Jig mounting surface (X-axis table)

□170
□160
(P40×4)
25-M4 Depth5
2-φ5H6 Depth5
60
60

Top view

400St(Y)
140 and below
Cable/air tube
100St(Z)
928
(235)
120
557
(32)
551
125
584
(93)

Side view

Cable/air tube
Cable/air tube
23
50
(M4 nut slot)
285
96
(115)
(58)
(226)
400St(X)
(109)
502
628
63 and below
(120)
Cable space
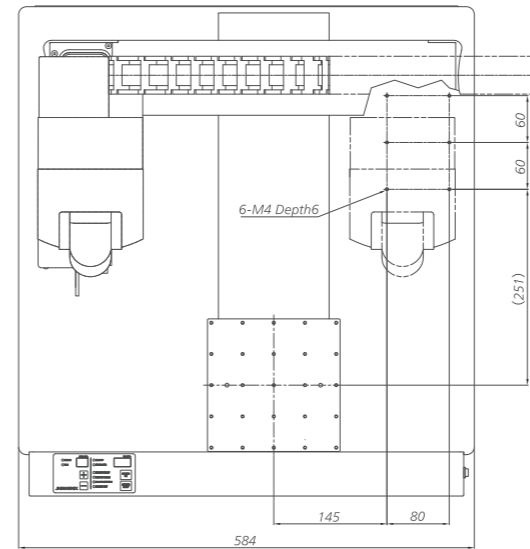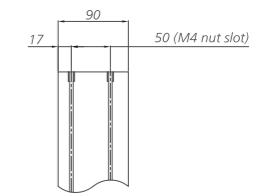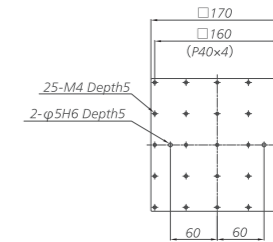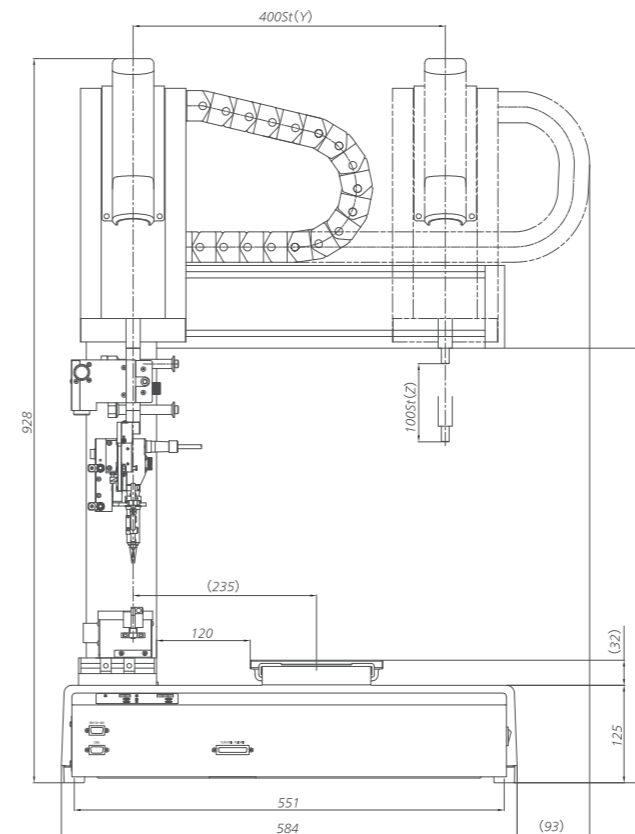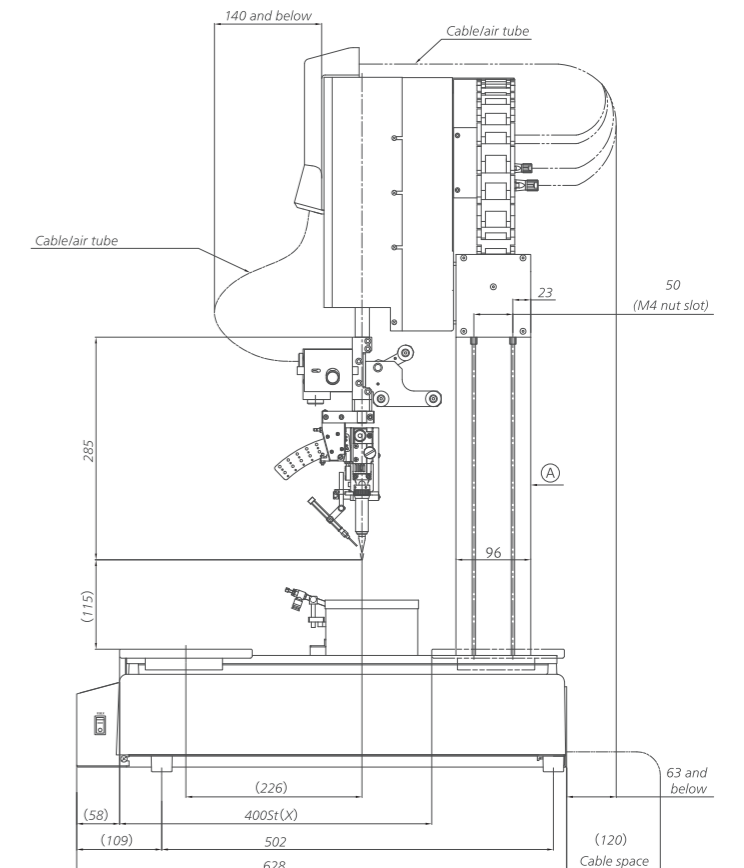
Comprehensive customer support structure provided by soldering engineers

Testing and Analysis Prior to Purchase

We preform soldering operation testing using systems that are identical to the ones the customer is considering for purchase. At Japan Unix we make maximum utilization of our soldering technology and experience to perform experiments, inspect results and only then suggest the ideal soldering structure and system.
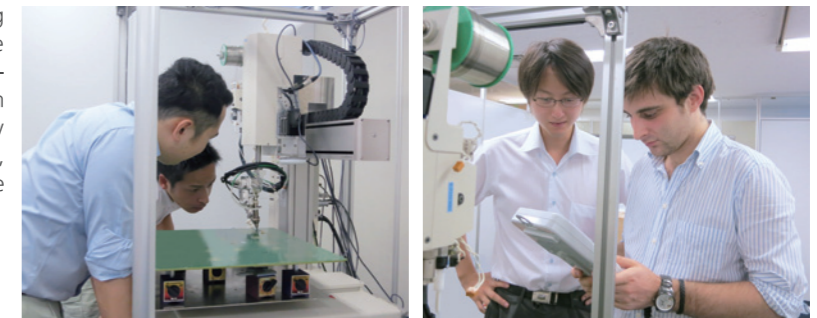
Design Support Service

In order to improve soldering operation efficiency and quality control, we provide a comprehensive range of processes from circuit board design to mass production.

Soldering Laboratory

The latest Japan Unix products are installed at our lab which is used for performing research and development of soldering technology, in addition to the testing procedures prior to purchase. It is also a place frequently used by worldwide customers, and has become something of an international soldering conference office. Also, in our soldering lab annex we analyze soldering joints in finer detail using state of the art optical and measurement systems. This plays a further role in the development of innovative products.

Soldering Support

In the manufacturing world, there is nothing more important than having someone you can trust when you run into unexpected trouble. The soldering specialist engineers at Japan Unix provide our customers with a comprehensive support structure from prior to your purchase to after the installation. This ensures continuous, safe, secure high quality manufacturing.

Prior to purchase Testing

After Installation
After Sale -Service

Customers

Inspection and Analysis

Research and Development

After-Service

To enable customers to operate in a more comfortable environment, we respond promptly to requests after the purchase for changes to system settings, software update, and repairs, among others. Please feel free to make an inquiry at any time.
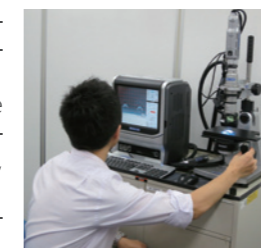
Soldering School (Certification Exam)

We regularly offer soldering classes which in a short period of time provide basic soldering techniques and knowledge.

※This program is based on The Japan Welding Engineering Society's "Micro-Soldering Technician Certification," and attendees can take the certification exam on the final day of the program.
※For more information, please contact the business supervisor or our school staff.

GLOBAL NETWORK

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