For Inquiries regarding All Products

■Supported Devices
Please see the device list on our website or use the device search to check devices supported by our programmer series. We are continuously adding new devices. For inquiries about devices that are not included in the list, contact us by using the contact form on our website or contact information below.

■Custom Support
We can respond to various requirements of customers relating to original memory boards, modules, special packages, in-circuit programming, etc. Please contact us by using the contact form on our website or contact information below.

■Free Upgrade
Once you complete the user registration on our website, you can download the latest algorithm software for free and receive important product information.
* Offline versions, such as CD-ROM, are paid options.

<Contact Us> E-mail

Technical questions : support@j-fsg.co.jp

Inquiries about sales : sales@j-fsg.co.jp

<Contact Us> TEL, FAX

TEL.+81-53-459-1050 / FAX.+81-53-455-6020

▲ **Flash Support Group**

TOA ELECTRONICS, Inc.
Flash Support Group Company

23F Hamamatsu Act Tower, 111-2 Itaya-machi, Naka-ku, Hamamatsu, Shizuoka, 430-7723, Japan

TEL +81-53-459-1050   **FAX** +81-53-455-6020

URL http://www.j-fsg.co.jp/en/

Quick & Flexible

Device Programmer Series & Service

Quick & Flexible

Quickly and flexibly responding to your requirements and changes in the market, we will properly support your business.

High speed programming for high density memories is now required to respond to greater capacities of semiconductor memories, such as NAND Flash memories, expansion of application, and shortened product development cycles.

The semiconductor memory market, with more compact and higher density memories, has unlimited possibilities including great technological progress.

In the market of semiconductor memory tools, mainly for Flash memories and Flash microcontrollers, our company are offering device programmers/automated programming systems, developing and supplying peripheral devices, and providing high-quality programming service using our product.

Corporate Profile

TOA ELECTRONICS, Inc.
Flash Support Group Company

Domestic

Head office
119-2 Azamishinden, Odaka-cho, Midori-ku, Nagoya, Aichi, 459-8001, Japan

Programming Center
9162-1, Miyakoda-cho, Kita-ku, Hamamatsu, Shizuoka, 431-2102, Japan
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FAX.+81-53-428-8377

Nagoya Representative Office
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Company Head office
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Tokyo Sales Branch
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FAX.+81-3-5769-2951

Osaka Sales Branch
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Overseas

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TOA SE, Inc.
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TEL.+1-859-881-3330
FAX.+1-859-881-3336

South China office
3F, Bldg1., bei science and technology industrial park, hetianxia intersection, shijie town, dongguan city, hirodong province,523290,P.R. China
TEL.+86-21-5761-8122
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TOA SE(Thailand)Co., Ltd
〒10110 Rompo Business Center, 115 Rimtangrodfaisaipaknam Road, Klongtoey. Klongtoey, Bangkok, Thailand
TEL.+66-2-671-3015
FAX.+66-2-671-2130

Founded	May 24, 1956
Capital	JPY 100 million
Chairman	Makoto Tanaka
President&CEO	Takanori Tanaka
Scope of Business	● Planning, manufacturing, sales, and servicing of device programmers and accessories ● Planning, manufacturing, sales, and servicing of applied microcomputer products ● Business relating to the items described above, such as programming services for device
Total employees	220 (including 50 Flash Support Group employees)
Customers	Panasonic Industrial Devices Systems and Technology Co., Ltd. / Fujitsu Devices Inc. / Renesas Electronics Corporation / Toshiba Corporation / Micron Japan Ltd. / Lapis Semiconductor Co., Ltd. / Macronix (Asia) Limited Japan Branch / Cypress Semiconductor/ and others(not listed in order)

INDEX

Contact us if you need customization of specifications, or programming systems in foreign countries.

AF9750

Quick & Flexible

Offers high speed processing using 200MHzDDR interface, for ver 5.0 or newer eMMC devices

New AF9750

High speed programming

For ver. 5.0 or newer eMMCs meeting JEDEC HS400, AF9750 with 200MHzDDR interface offers about 4 times faster programming than previous models.

| 64GB (P+V) | Approx. 1,330 sec Approx. 21 sec/GB |

* Depends on devices.

Data transfer

High speed transfer of high density data is possible by using USB3.0.

| 1GB data transfer (PC→AF9750) | Approx. 13 sec |

* Depends on PC specifications.

Standard buffer memory **1 Tbit**
Max. **20** devices

Application for eMMC devices

AF9750 is provided with control software using UI specialized for programming eMMC devices. The latest software for updating hardware and device information will be provided for free on our website.

- USER area can be split into four parts with GPP function
- "Enhanced" configuration can be applied
- Various register settings are supported
- Programming settings can be saved and read as a project file
- Quantity control by using the lot mode

Interfaces appropriate for manufacturing sites

Equipped with USB 2.0/3.0, LAN and RS232C, AF9750 can be linked with other production equipment and control devices.

LAN   USB 2.0/3.0   RS232C

Embedding AF9750 in an automated system

Long-hour unmanned programming can be performed by embedding AF9750 in an automated system.
Image processing using a camera for device position correction enables device transportation with no stress on device balls.
We can also offer systems with laser marking and 3D lead inspection functions.

20 trays stacked on the tray stacker   TEH2750
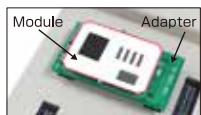
Options

● Conversion adapter

Our conversion adapters support eMMC packages of various manufacturers. We can also produce custom adapters for programming to eMMCs that have already embedded.

Model	Package
TN01-153BG-01	153BGA 11.5×13×0.8 to 1.2 (mm)
TN01-100BG-02	100BGA 14×18×1.2 to 1.4 (mm)

TN01-153BG-01

Module   Adapter

Example of an eMMC module + adapter

● Socket opening/closing tool

As lead-free memories with larger capacities become widespread, many sockets have been tight and hard to open/close.
Opening/closing tools will reduce burden on workers and increase operation efficiency.

Requests for machine demonstrations and inquiries

MAIL : AF9750@j-fsg.co.jp

■ Product specifications

	AF9750
Supported devices	Ver. 5.0 or newer eMMC devices of various manufacturers
Buffer memory	1Tbit (128GB) as a standard, optional expansion available
Concurrent programming/No. of slots	Up to 20 devices / 20 slots
Device functions	COPY · ERASE · BLANK · PROGRAM · VERIFY · B.P.V · E.P.V · P.V
Programming power	Vcc: +3.3V, Max: 1A/slot
	Vccq: +1.8V, Max: 500mA/slot
External interfaces	USB 2.0/3.0, RS232C, LAN
Input power voltage	AC100 to 240V
Frequency range	50 to 60Hz
Power consumption	Up to 300VA
Size/weight	W223 x D290 x H108mm (excluding protrusions)/approx. 3.5kg
Consideration for environment	Compliant with RoHS

Large-Capacity Device Programmer

Quick&
Flexible

Realizes high speed programming for large capacity memories
in both engineering and mass production

High-Speed Gang Programmer

AG9730B/30C/31

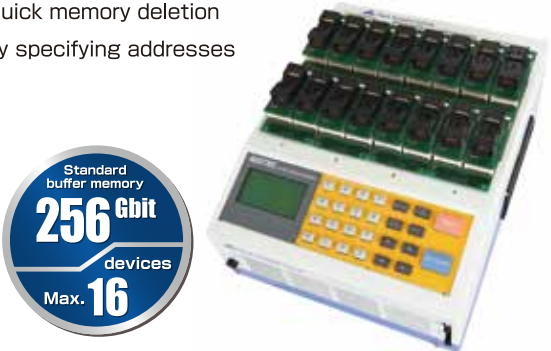### For high density Flash and SPI Flash memories

AG9730B *Amusement*

- High power with Vcc max. 2A per slot
- Supports 2-socket adapters for 140/144pin LGA, etc.
- Data download approx. 15 sec/Gbit

AG9730C *General*

- Supports eMMC/NAND/SPI Flash,
  etc. for consumer products
- Large capacity buffer memory 256Gbit
- Quick memory deletion
  by specifying addresses

Standard buffer memory **256** Gbit devices Max. **16**

Standard buffer memory **256** Gbit devices Max. **16**

Concurrent programming of up to 16 devices

For devices such as SPI Flash, eMMC NAND memories (moviNAND, iNAND), NOR56TSOP, NAND48TSOP, concurrent programming of up to 16 pcs can be performed with 4-socket adapters.

Full pin checking

By detecting defective items before programming, AG9730B/C maintains high production efficiency and offers high quality programming.

Enable master data download via a CF card

Even without using a personal computer, master data can be downloaded by using a commercially available CF card (*).

* Supported formats of CF cards are FAT12, FAT16, and FAT32.

4-slot concurrent and independent operations

Concurrent programming of 4 kinds of data (*1) and connecting 4 types of adapters (*2) are possible.

*1 Only when processing 1 type of adapter and device
*2 Programming is performed by each slot. Concurrent operation cannot be performed.
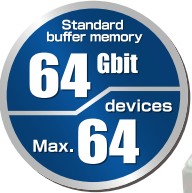
High speed processing

Newly developed high speed algorithm shortens the programming time for large capacity Flash memories.

Data transfer (PC→AG9730B/30C)	Approx. 15 sec/Gbit	Programming	AG9730B 64Gbit NOR Flash Approx. 19 sec/Gbit (high speed algorithm ver.)
			AG9730C 64Mbit SPI Flash Approx. 0.35 sec/Mbit

Max. 64 devices with 16 slots for mass production

AG9731 *Amusement*

Standard buffer memory **64** Gbit devices Max. **64**

- High power with Vcc Max. 2A per slot
- Concurrent programming of up to 64 devices with 4-socket adapters
- Concurrent programming of up to 32 pcs of 140LGA multipin devices
- Optionally, expansible to up to 256Gbit. (option)
  Expansion to 256Gbit enables high speed downloading of approx. 18 sec/Gbit.

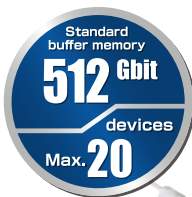
GANG Programmer

For high-speed serial interface

AG9740/40S

For high speed programming to high-speed serial interface memory modules in mass production
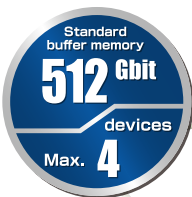
AG9740 *Amusement*

- Enables concurrent programming of up to 20 pcs*
  * Depends on devices.
- High throughput programming at approx. 3.2sec/Gbit*
  * When 20 62Gbit modules of company A are installed. Depends on devices.
- High speed downloading at approx. 2.2sec/Gbit* with USB3.0
  * Depends on PC specifications.
- Buffer memory 512Gbit

Standard buffer memory **512** Gbit devices Max. **20**

AG9740S *Amusement*

- 4-slot version of AG9740
- Higher programming speed than AG9740
  by approx. 20%
- Downloading/programming multiple master data sets at once
- Eliminating the control unit enables the low price

Standard buffer memory **512** Gbit devices Max. **4**

■ Product specifications

	Gang programmer			
	AG9730B/30C	AG9731	AG9740	AG9740S
Supported devices	256Mbit or greater 1.8 to 3.3V type Flash memories or equivalents Customization for various memories/media with ATA-compliant interfaces including HDD/SSD memory modules		High-speed serial interface memory modules	
Buffer memory	256Gbit	64Gbit (Expansible to 256Gbit as an option)	512Gbit	
Concurrent programming /No. of slots	Standard 4 devices Up to 16 devices / 4 slots	Standard 16 devices Up to 64 devices / 16 slots	Up to 20 devices / 20 slots	Up to 4 devices / 4 slots
Device functions	COPY · ERASE · BLANK · PROGRAM · VERIFY · B.P.V · E.P.V · E.P · P.V			
Programming power (Vcc)	0.9V to 3.8V(IccMAX2A)		2.8V to 3.8V(IccMax2A)	
External interfaces	USB2.0, CF Slot, I/O line for external trigger	USB2.0	USB3.0	
Data bus	Up to 64bit		—	
Monitor display	20 characters x 8 rows, full-dot LCD		20 characters x 4 rows, LCD (optional for AG9740S)	
Input voltage/frequency	AC90 to 240V／50 to 60Hz		AC90 to 240V／50 to 60Hz	
Power consumption	Up to 200VA	Up to 930VA	Up to 320VA	
Size * excluding protrusions	W235×D290×H100mm	W500×D540×H70mm	W313×D473×H89mm	W270×D160×H89 mm
Weight * excluding accessories	Approx. 3.6kg	Approx. 12kg	Approx. 5.3kg	Approx. 2kg
Other	Compliant with RoHS			

For programming of small to middle capacity NOR/NAND Flash, serial Flash, and Flash microcontrollers

Mass Production Device Programmer

Standard buffer memory
1 Gbit
devices
Max. **8**

AF9725

Standard buffer memory
1 Gbit
devices
Max. **16**

AF9724

Engineering Device Programmer

Standard buffer memory
1 Gbit
devices
Max. **1**

AF9711

■ High speed data transfer

USB2.0 interface for high speed transfer and remote control realizes faster transfer of high density data.

1Gbit binary data transfer: approx. 20 sec

■ Full pin checking

Checks whether all pins of devices on adapters correctly contact before programming. Loose connections due to deteriorated terminals, device mounting failure, and short circuits between terminals are detected, improving programming efficiency and reliability. * Some devices not supported.

■ High speed programming

High speed programming/reading with the R/W cycle of up to 80nsec, 10 times faster than AF9845, and maximum 16bit data bus access.

■ USB 2.0 host function

Connectable with commercially available USB Flash memories, enabling downloading of master and algorithm data without PCs.

■ Automatic recognition & concurrent operation

A concurrent function is incorporated to begin automatic processing when the device mounting is detected, largely reducing the cycle time.

* Only when 2 slots are used. Not installed in AF9711.

Processing time examples (NOR Flash 256 Mbit)   (sec)

Programmer	Program	B.P.V
AF9724 / 25 / 11	75	85
Previous models(AF9723B + AF9845B/C)	175	270

■ Product specifications

	AF9724	AF9725	AF9711
Supported devices	Up to 1Gbit 1.8 to 5V Flash memories, Flash microcontrollers, and other memories		
Speed	R/W cycle of up to 80 nsec		
Buffer memory	1Gbit as a standard (expansible to 16Gbit as an option)		
Concurrent programming	16 devices	8 devices	1device
No. of slots	16 slots	8 slots	1slot
Device functions	COPY · ERASE · BLANK · PROGRAM · VERIFY · B.P.V · E.P.V · E.P · P.V		
Programming power(Vcc)	1.2V to 6.5V (IccMax=500mA ∕ 2 sockets)		1.2V to 6.5V (IccMax=250mA)
External interfaces	USB2.0 and USB host function		
Data bus	Up to 16bit		
Monitor display	20 characters×4 rows, LCD		20 characters×4 rows, LCD(option)
Input voltage/frequency	AC100 to 240V ∕ 50 to 60Hz		
Power consumption	Up to 200VA		Up to 33VA
Size * excluding protrusions	W465×D330×H67mm		W135×D180×H50mm
Weight * excluding accessories	Approx. 6kg	Approx. 5.9kg	Approx. 0.7kg
Other	Compliant with RoHS		

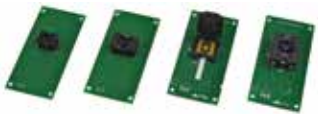## High speed programming to SPI Flash memories

Dedicated adapters enables high speed programming without disturbing device capabilities.
Support single, dual, and quad modes.

Programming time examples (W25Q64FVSSIG 64Mbit)   (sec)

	Models used	Program
Previous models	AF9724+AF9851A+TEF005-SIR8SPI-200	100
New models	AF9724+TK001-SPI8SOP-200	18

* The programming time depends on devices and environments.

Example of attaching dedicated adapters (TK series)

Various dedicated adapters

Examples of customization

■ Programming tools for wireless modules

For wireless modules, which are increasing due to IoT, we offer clip-type programming tools with pins that vertically descend and correctly contact with module terminals.
Connecters are not needed on circuit boards, which reduces component cost, work processes, and board size.

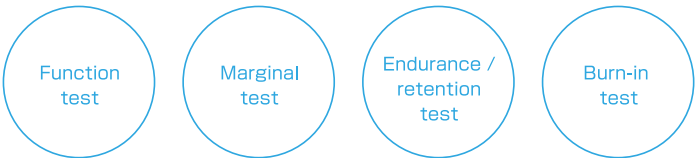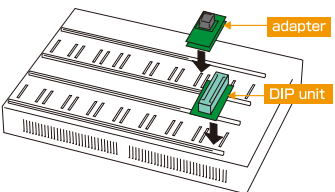We can produce various custom tools

Contact pins   Example of attaching adapters

■ Tests

We can establish various test systems to ensure reliability of programming quality.

Function test   Marginal test   Endurance / retention test   Burn-in test

Example of a custom burn-in board

DIP conversion units enabling use of previous conversion adapters

Conversion adapters for previous models can be used with dedicated DIP units (a paid option), which enables efficient use of your equipment.
(Some adapters are not supported)

Model name	Supported adapters	Names of previous models
48DIP Unit AF9851A	48 pin DIP Adapter	AF9845 series, AF9708/09 series, AF9710
40DIP Unit AF9852A	40 pin DIP Adapter	AF9837
32DIP Unit AF9853B	32 pin DIP Adapter	AF9833、AF9708/09 series

* In some cases, algorithm software needs to be adjusted. (free)

adapter
DIP unit

Example of attaching a DIP unit   Example of a DIP unit + adapter

Conversion adapter

Package Conversion Adapter

As compact, high-density, and complexed Flash memories rapidly increased, packages tailored to application specifications have been popular.
A wide variety of packages includes custom DIMM for each customer and many types of cards.
We offer conversion adapters for programmers that support memories of various semiconductor manufacturers.

For use in engineering, manufacturing lines, and various other situations

In-Circuit Programmer

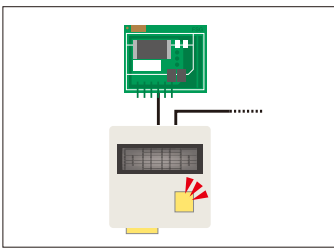### Serial programming of various Flash microcontrollers, Serial and SPI Flash

■ Standard buffer memory 1Gbit
■ Supports single, dual, and quad modes
■ High-speed data transfer using USB2.0
■ Master data management with dedicated memory cards
■ Development of algorithm software for each device for free
■ Supports SWD, JTAG, UART, various CLK sync types, and other special serial communication

AF9201

| Programming time examples | SPI Flash Program (including Verify) | 64Mbit | Approx. 35 sec |
| | | 512Mbit | Approx. 63 sec (with high speed algorithm, quad mode) |

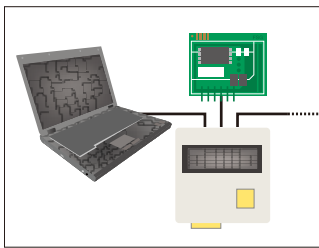* Depends on devices and environments.

Mode selectable according to the operating environment

Standalone mode

Select the stand-alone mode when no PC can be used or fixed data is programmed. This mode is operable with a single key.

Remote mode

Useful when programming data under development or multiple sets of data continuously. Easily operable with a USB-connected PC.

For manufacturing lines 1

Gang programming by linking multiple programmers

OPTION Mass production control software for easy control

Up to 8 programmers can easily be controlled with a connected PC. Either remote simultaneous programming of all connected units or manual programming of individual units can be selected. Customization for concurrent programming under master/slave method is also available.

USB connection

Target board

Input/output using external trigger signals with an external control interface is also applicable.

For manufacturing lines 2

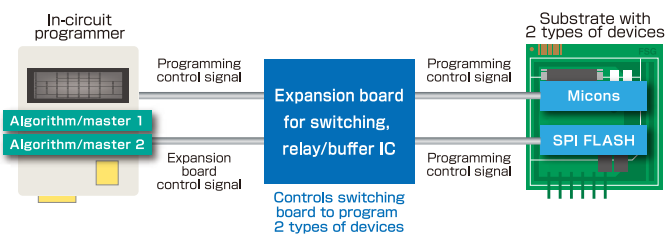### Gang programming to multiple memories on a substrate

OPTION Custom tools can be produced

Input of operations or output of results by using trigger signals can be performed with a dedicated interface for external control. Multiple programmers linked to the system improve operability and productivity.

External control switchboard

Substrate with multiple memories

Linked to the fixture tool

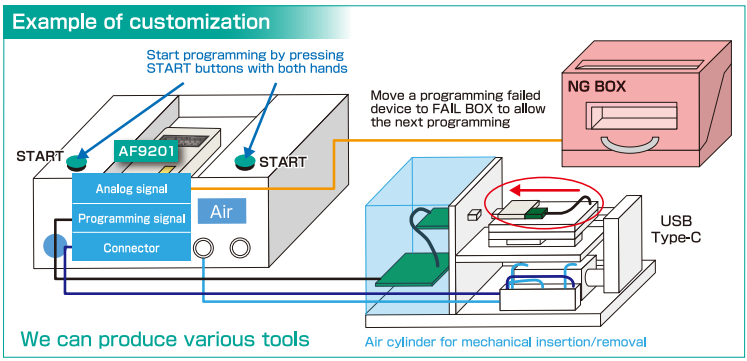Fixture tool

Examples of customization

■ Concurrent programming to different micons/memories

For a substrate having different types of microcontrollers or memories on it, we can develop a system to manage the devices and program different data by using expansion board for switching. This eliminates the need to establish multiple programming systems, and simplifies production.

In-circuit programmer

Programming control signal

Algorithm/master 1
Algorithm/master 2

Expansion board control signal

Expansion board for switching, relay/buffer IC

Controls switching board to program 2 types of devices

Substrate with 2 types of devices

Programming control signal

Programming control signal

Micons
SPI FLASH

■ Programming to cables equipped with chips

Our original adapters for USB Type-C realized systems for programming to E-markers of various manufacturers. Control software enables settings and storage of configuration data. The adapters can also be used with AF9724/25 for mass production.

Example of customization

Start programming by pressing START buttons with both hands

START AF9201 START

Analog signal
Programming signal
Connector

Air

NG BOX

Move a programming failed device to FAIL BOX to allow the next programming

USB Type-C

We can produce various tools

Air cylinder for mechanical insertion/removal

■ Other examples

Encryption programming using a security code /programming controlled by a sequencer in a production facility / concurrent programming to substrates with multiple memories/ various test systems

Paid options

Dedicated memory card (CF card)	TECFM-1G-20 supporting 1 type of device/TECFM-1G-20-4 supporting 4 types of devices
Control software TEM1000 series	Enables various settings and device functions using a USB-connected PC
Power supply booster box	Enables output of a high voltage and control signals according to device specifications
DLL (file, manual)	Useful when you develop original control software

* One unit of the programmer is provided with one dedicated memory card. Both control software and algorithm software can be downloaded for free from our website. http://www.j-fsg.co.jp/en/

■ Product specifications

	AF9201
Supported devices	Flash ROMs, Flash microcontrollers, Serial Flash ROMs of various manufacturers supporting SPI, UART, I²C, JTAG or CLK sync
Buffer memory*	Standard : 1Gbit (dedicated DF card)
Concurrent programming	Only 1 device at once
Device functions	COPY · ERASE · BLANK · PROGRAM · VERIFY · B.P.V · E.P.V · E.P · P.V
Programming power(Vcc)	Vcc : 1.5 to 5.0V (Icc : MAX 250mA)
External interfaces	Target interface (CSI, UART, I2C, JTAG, CLK sync)
	USB2.0
	Memory card interface
	External control interface
Monitor display	20 characters×8 rows, LCD
Input power voltage	AC100 - 240V DC7V (main unit) * Consult us if it exceeds AC125V.
Frequency range	50 to 60Hz
Power consumption	Up to 3VA
Size * excluding protrusions	W100×D120×H22mm
Weight * excluding accessories	Approx. 210g

* Only one series can be registered to one CF card. Another CF card is required for additional device support.

Overseas installation service is available.

Our overseas offices support installment and maintenance of our products.
Engineers with expertise are always prepared to rapidly handle unexpected problems.

Quick & Flexible

New! Programming / Laser marking / 2D appearance check*

High-quality all-in-one model has debuted!

TEH2724LS

■ Productivity
- Programming, marking and inspection are parallelly performed to output **up to 1,000 pcs**/hour (program + mark + inspection)
- 20 tray stacking possible for a long hour unmanned operation

■ Traceability
◀ QR codes
- Laser marking standard
- Marking of product information, a serial number, destination
- Supports QR codes and extremely small letters

■ High quality
- Prevents bent pins by processing images with a correction device
- Performs lead inspection and marking inspection (option)

TEH2724LS
Introduction movie
https://youtu.be/ojLF1nQcfpk

New! Programming / Laser marking / 3D appearance check*

Performs 3D appearance check parallelly

TEH2724-2LSC

- ■ High-quality 4-head robot enables output of **up to 1,440 pcs**/hour (program + mark + inspection)
- ■ Laser marking standard
- ■ 3D inspection detects bent leads and checks for coplanarity of leads and balls.

Programming / Dot marking* / 2D appearance check*

Highly productive, space-saving model

TEH2724/30C/50

- ■ Compact body with a footprint of 1m2 or less and a height of 1.4m
- ■ Device transport 3.6 sec/device, max. 1,000 pcs/hour
- ■ Realizes both high performance and low price

TEH2724
Introduction movie
https://youtu.be/MUkR89k9FWU

Functions with * are options.

Laser marking system

TEH2500
- ■ 20 trays stacked for large-volume continuous operation
- ■ Processes images to detect devices and start marking

Label attachment system

TEH1600
- ■ Up to 40 trays Supports label designed by customers
- ■ Precise label attachment using image recognition

Label inspection

Features of our programming systems

● **Tray stacking**

Automatic transportation of stacked supply trays enables unmanned operation for long hours. FAIL items are moved to the FAIL tray and not mixed with OK items.

● **CCD camera reducing adjustment work**

The camera with an X-Y-Z robot detects socket positions (automatic teaching) and the position correction camera detects positions of devices picked up by transport heads. This enables devices to be attached to sockets with no damage to leads.

High-performance ▲ CCD camera

● **Traceability**

The PC-based system enables monitoring of the operation status, tracing of the operation history, and data analysis.

● **Stamp marking** (option)

Dot/alphanumeric marking using dedicated stamps enables classification of designations and specifications. (TEH2724/30C/50)

● **Barcode reader** (option)

Using a barcode (QR code) reader prevents human error and saves time for settings. Useful in high-mix low-volume production.

● **Wearable terminal** (option)

A watch-type wireless receiver for information of equipment failure or completion of operation. Useful when the plant has a loud noise or notification using sounds or displays is difficult.

■ Product specifications

	TEH2724LS	TEH2724-2LSC	TEH2724/30C/50
Incorporated programmer / Concurrent programming	AF9724 (1 unit)/up to 16 devices	AF9724 (2 units)/ up to 32 devices	TEH2724 : AF9724(1 unit)/up to 16 devices TEH2730C : AG9730C(2 units)/up to 32 devices TEH2750 : AF9750(2 units)/up to 40 devices
Tray stage	4 trays		
Tray loader	20 trays		
Device IC socket	Open-top type		
Transporting capacity per device	3.6 sec	2.5 sec	3.6 sec
Device pick-up head	2 heads transporting 2 devices at once	4 heads for 4 devices at once	1 head for mounting and 1 head for ejecting
CCD camera	For socket position detection (2MP) For device pick-up correction (2MP) For marking and inspection (5MP)	4 units for socket position detection / device pick-up correction (2MP) 2units for marking and inspection (5MP) For 3D inspection (4MP)	2 units (0.3MP) · For socket position detection · For device pick-up position correction
Device position correction	Position correction using a CCD camera	Position correction using a CCD camera	Position correction using a CCD camera
Size (W×D×H mm) * excluding protrusions	1340×1110×1400	2300×1170×1420	990×990×1400
Weight * excluding accessories	Approx. 650kg	Approx. 1600kg	Approx. 450kg
Air	0.5MPa 250 l /min(ANR)	0.39MPa 800l/min(ANR)	0.5MPa 200l/min(ANR)
Power supply	AC200V ±10% 50/60Hz 7.7kVA three-phase	AC200V ±10% 50/60Hz 50A three-phase	AC200V ±10% 50/60Hz 20A three-phase
Options	· 2D marking inspection · 2D lead inspection · Barcode reader · Single-phase support	· Marking inspection · Lead inspection · Barcode reader · Single-phase support	· 2D marking inspection · 2D lead inspection · Stamp marking · Barcode reader · 2 million pixels CCD camera · Single-phase support
Remarks	Laser marking and an ionizer as a standard		Ionizer as a standard

Programming Service

Quick & Flexible

Careful, reliable and quick service only FSG, a leading programmer manufacturer, can provide.

Programming service of Flash Support Group

Uses FSG products in the processes

Supports the latest devices
We quickly support the latest devices in cooperation with semiconductor manufacturers.
Also support customized specifications and 64Gbit or larger capacity devices.

High quality
Thorough temperature/humidity control and static protection.
Realizes traceability with lot management.
Automated inspection system makes inspection level uniform and prevents inspection leakage.
No bent lead is overlooked in automated lead inspection.

ISO9001:2015
B06Q10039R1M

Quick service
Quick, high-volume programming and inspection with automated systems.
Operate 16 hours/day. Optionally, 24-hour operation is available.

TAT 1-3 days after devices and master data are provided

Low price
Realizes high efficiency with our automated programming and inspection systems.

Environment
Compliance with ISO14001 and RoHS.
We can also satisfy the procurement control standard of each customer.

ISO14001:2015
B06E10015R1M

Wide-range support from small-lot trial manufacture to mass production

Programming/post-programming work with provided equipment

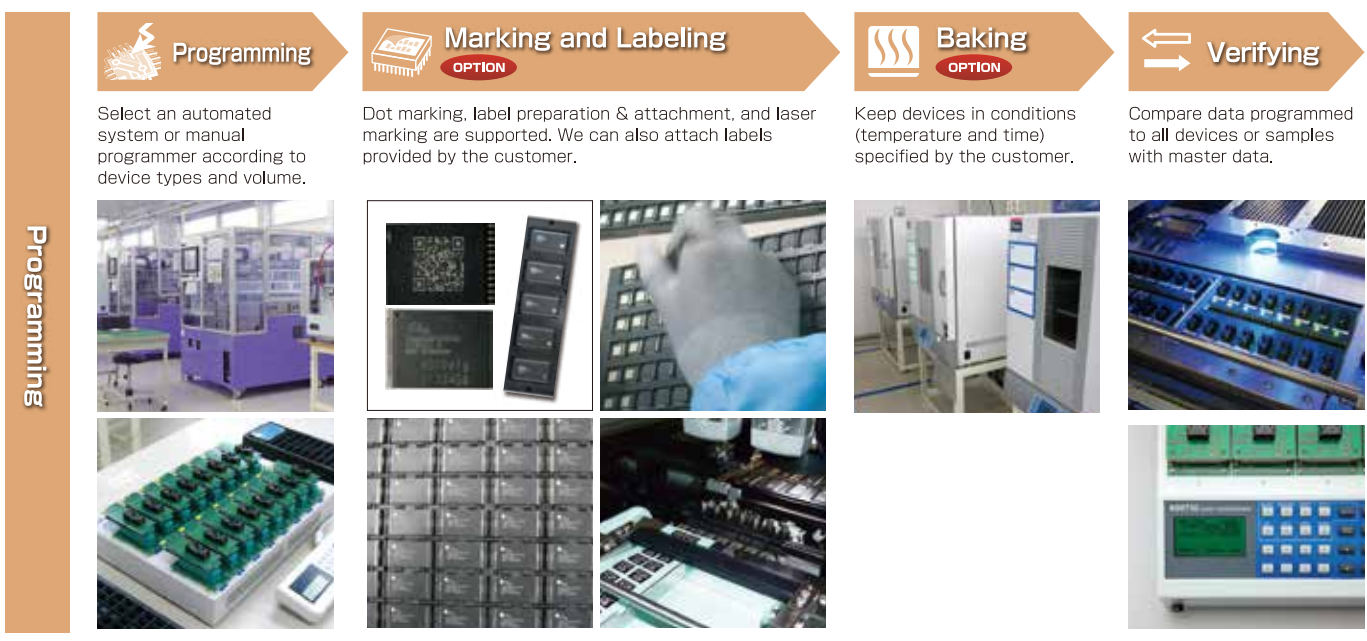**Supports reuse of circuit boards and units**

Supported Devices
- Flash memory
- NAND Flash memory
- EPROM
- Flash microcontroller
- OTP microcontroller
- EEPROM
- Compact Flash
- SD/MicroSD card
- USB memory
- Custom modules
- Devices supported by our programmers
- HDD

Facilities

Device programmers FSG products
- AF9723 Gang Programmer
- AF9724 Gang Programmer
- AF9730/30B Gang Programmer
- AG9740
- AF9833 Gang Unit
- AF9848 NAND Flash Gang Unit
- AF9845 Gang Unit
- AF9834 Gang Unit
- AG9860 High-Speed Gang Unit
- TE/TEF Series Adaptors

Automated programming systems FSG products
- TEH1220
- TEH2010 2 units
- TEH2024
- TEH2724
- TEH2724LS
- TEH3000
- TEH4000 2 units

Automated laser marking systems FSG products
- TEH1521
- TEH1530
- TEH2500

Automated label attachment system FSG product
- TEH1600

Duplicators (CF/SD/USB)

Automated lead inspection systems
- CI-3050
  ICOS Vision Systems 3 units

Baking systems 3 units

Automated label inspection systems 2 units

Packing systems 2 units

Example of processes

Programming service

Preparation

Receive a programming order, check master data
Collate the provided programming order details with checksum values of master data.

Receive components
Perform acceptance inspection. Send a record of receiving provided items via email.

Sample programming
For a new customer, perform sample programming, which is verified with the customer's system.

Customer checks samples, gives the Go-ahead
We start programming after receiving the evaluation result.

Programming

Programming
Select an automated system or manual programmer according to device types and volume.

Marking and Labeling OPTION
Dot marking, label preparation & attachment, and laser marking are supported. We can also attach labels provided by the customer.

Baking OPTION
Keep devices in conditions (temperature and time) specified by the customer.

Verifying
Compare data programmed to all devices or samples with master data.

Shipping

Inspection
In addition to visual inspection, outer leads and labels are checked with lead inspection and image checking systems.

Packing
Vacuum-pack bundled trays with a vacuum sealer to protect them from moisture.

Shipment
Send items in a shipping box. Notify the customer of shipment via email or FAX.

The above is an example. Processes can be changed to meet requirements of each customer.
We will quickly handle problems in any process in accordance with our quality control rule.

Inquiries about our programming service

TEL +81-53-428-1130
FAX +81-53-428-1360

URL www.j-fsg.co.jp/en/prod/pro-service/
▶▶▶ A programming order sheet can be downloaded from our website.