

Manual Pick&Place-Manipulator SMT3000 ECO LIGHT Plus

Translation of the Original Instructions



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Prospect

Manipulator for the production of prototypes and small series. The patented Pick & Place head enables easy handling of SMD components. The modular system can be configured for any application. The system realizes the entire process from applying the solder paste or glue to assembling the various components.

Properties

- Manipulator for assembling SMD components
- Smooth-running XY portal with placement head in the Z axis
- With flexible magnetic circuit board holder, hand rest
- Holding rail with 5 tape feeders and universal component support
- Stand with 36 containers and vacuum pump
- Housing and palm rest powder-coated in light grey 7035

Ergonomics

The smooth guidance of the placement head helps to position the SMDs exactly.

Options:

Dosing device

The manipulator can be expanded to a dispenser by means of a compressor and a manual dosing device. In addition to solder paste and adhesive, other media can also be dispensed.

Component feeder

The components can be provided in the belt as well as in bulk on the system for processing.

Tape feeder

Tape feeders can stock standard components in large quantities at the workplace. When the cover tape is removed, the belt is automatically advanced and the components to be processed are exposed.

Laboratory belt dispenser

The belt sections required for production can be processed with the laboratory belt dispenser. The individual components can be removed directly from the belt and there is no need to transfer them to bulk containers.

Bulk container

The bulk goods container provides capacitors, resistors and ICs on the manipulator.

Camera attachment

Using a camera that can be adapted directly to the placement head, the entire placement process, from picking up to placing the component, can be shown enlarged on a monitor.

Technical Data

Productivity:		max. PCB- thickness	10 mm
Pick&Place rating	200-500 SMDs/h	max. free height below PCB	18mm
Pick&Place range	270 x 170 mm	max. PCB-size	340 x 170 mm
Z-Lift Placement head	25 mm	Machine dimension	
Turning angle	0 - 360 degree	Device dimension (X, Y, Z)	600 x 600 x 200 mm
Component-supply:		Max. stroke (X, Y, Z)	600 x 840 x 200 mm
Basis kit	5 belts can be added optional via additional rail max. 19 x 8mm	Power connection	220-240V, AC, 5 VA
Bulk components	Device with max. 36 Con- tainer	Weight	15 kg
Component dimensions:		Environment	
Range	0402 - 70x70mm	Humidity	50-75%
max. component height	20 mm (with PCB = 1,6mm and Standard PCB holder)	Operating temperature	15-30° C
PCB:		Noise	50-70db
min. PCB-size	8 x 8mm		

Technical Changes reserved

Declaration of Conformity



EG-Konformitätserklärung/Declaration of Conformity

Hersteller / Supplier:	Bungard Elektronik GmbH & Co. KG Rilkestraße 1 51570 Windeck Germany
Bevollmächtigte Person für die Zusammenstellung der technischen Unterlagen: Person in charge	Jürgen Bungard, Geschäftsführer /general director Rilkestraße 1 51570 Windeck Germany
Produkt:	Pick&Place-Manipulator SMT3000 ECO LIGHT BASIS

Hiermit erklären wir, dass die oben beschriebenen Maschinen allen einschlägigen Bestimmungen der Maschinenrichtlinie 2006/42/EG entspricht.

Die oben genannte Maschine erfüllt die Anforderungen der nachfolgend genannten Richtlinien und Normen:

We hereby declare that the machines described above complies with all relevant provisions of the Machinery Directive 2006/42/EC.

The above machine meets the requirements of the following guidelines and standards:

- Maschinenrichtlinie 2006/42/EG / Machinery Directive 2006/42/EC
- EMV-Richtlinie 2014/30/EG / EMC Directive 2014/10830EC
- Niederspannungsrichtlinie 2014/35/EG / Low Voltage Directive 2014/35/EC
- DIN EN 60204-1 Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1: Allgemeine Anforderungen / Safety of machinery - Electrical equipment of machines - Part 1: General requirements
- DIN EN ISO 14121-1 Sicherheit von Maschinen - Risikobeurteilung - Teil 1: Leitsätze / Safety of machinery - Risk assessment - Part 1: Principles
- DIN EN ISO 12100-1 Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze, Risikobeurteilung und Risikominderung / Safety of machinery - Basic concepts, risk assessment and risk reduction
- DIN EN 55014-1 2012-05 Elektromagnetische Verträglichkeit, Anforderungen an Haushaltsgeräte, Elektrowerkzeuge und ähnliche Elektrogeräte, Teil 1: Störaussendung / Electromagnetic compatibility Requirements for household appliances, electric tools and similar electrical appliances Part 1: Emission
- DIN EN 55014-2-2009-06 Elektromagnetische Verträglichkeit - Anforderungen an Haushaltgeräte, Elektro-werkzeuge und ähnliche Geräte - Teil 2: Störfestigkeit - / Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity
- Niederspannungsrichtlinie / Low Voltage Directive 2014/35/EG
- Maschinenrichtlinie / Machinery Directive 2006/42/EG/37/EG

Windeck, 10.1.2020

Jürgen Bungard Geschäftsführer

Introduction

Bungard Elektronik GmbH & Co. KG (hereinafter referred to as "BUNGARD") reserves the right to make changes or improvements to machines or machine specifications that it deems necessary at its own discretion and assumes no obligation to implement said changes in previously sold Machinery.

BUNGARD products and services are subject to the prices and conditions applicable at that time. These prices and conditions are subject to change.

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SMT3000-Eco® is a registered trademark of BUNGARD GmbH.

MS-Windows and Microsoft are registered trademarks of Microsoft Corporation.

Many of the names used by manufacturers and retailers to label their products are claimed as trademarks. BUNGARD has listed all of the trademarks known to it above.

General

Before installing, connecting and commissioning the system, please read through these original operating instructions completely.

These operating instructions must always be available to the operating personnel. It is necessary for the safe operation of the system and helps to identify problems that arise.

This manual contains information for the SMT 3000 ECO and is the original.

It is only intended for the operator and his staff.

Reproduction and distribution may only be used for internal purposes.

Standard text symbols

This manual contains various symbols to identify important sections:

**Caution**

This indicates to the operator that the machine can be damaged or a component destroyed if the procedure described is not followed.

**Warning**

This indicates that the operator may be injured or the machine seriously damaged if the procedure described is not followed.

**Important**

The information marked with such a symbol must be read carefully to ensure the proper operation of the machine.

**Tips and Tricks**

This informs the operator of useful suggestions and helpful information.

Intended Use

The manipulators SMT 3000 ECO were built specifically for the following purposes:

- ② equipping with SMD components
- ② the dosing of solder paste and SMD glue

Applications other than those described in this manual are not permitted.

BUNGARD GmbH & CO. KG assumes no liability for damage caused when the machine is used for other purposes.

Safety

BUNGARD machines and devices may only be operated, repaired and serviced by specialized personnel.

Responsible behavior

Please note the following guidelines for responsible behavior:

- ② Follow the instructions provided when performing maintenance tasks.
- ② Keep body parts away from moving parts.
- ② Only operate the machine if you have read and understood all the relevant manuals for the machine and all warning and information signs on the machine.
- ② Make sure that you have the appropriate qualifications and know the machine functions and safety features. If necessary, ask superiors for help.
- ② Do not misuse the device. Only use this according to its sense of use in accordance with the operating instructions.
- ② The repair of the devices is only permitted to a service technician commissioned by BUNGARD GmbH.
- ② If necessary, also observe the special safety regulations of your country.

Operator training

- ② Only trained and competent operators may operate this machine.
- ② The persons responsible for setting up, installing, operating, setting up, servicing and repairing this machine must be clearly identified.

Safety and protective measures



Warning

To maintain the required operational safety, please note the following:

- ⚠ Touch the placement and dosing pipettes with caution. The small diameter of the pipettes can easily injure a person's skin.
- ⚠ This device is operated electrically. When operating electrical devices, certain parts within these devices are inevitably under dangerous voltage.
- ⚠ Failure to observe the operating instructions can result in death, serious physical injury or considerable damage to property!
- ⚠ Never open a device housing.
- ⚠ Do not misuse the device. Only use this according to its sense of use in accordance with the operating instructions.
- ⚠ Only a service technician commissioned by BUNGARD GmbH & Co.KG is allowed to repair the devices.
- ⚠ If necessary, also observe the special safety regulations of your country.

Operation and maintenance

There are no parts on the manipulator SMT 3000 ECO that require regular maintenance.

However, to ensure trouble-free operation for years, you should note the following points:

- ⚠ Keep the workplace clean. Contamination of the device or the vacuum pump can lead to premature wear. For example: rusting of the metal parts, wear of the guides or failure of the vacuum pump.
- ⚠ Test the placement arm guidance at regular intervals. If this wobbles, you can adjust the play on the guide slide of the manipulator bridge.
- ⚠ Test the vacuum created. If, for example, you can no longer accommodate larger components properly, please check whether the vacuum pump generates sufficient vacuum. If this is the case, please check the pipette and the vacuum filter.



Note

If you have any other problems with your manipulator or you cannot solve one of the problems mentioned, our service is at your disposal at any time.

Installation

The manipulator is delivered assembled. You only need to connect pump to power and vacuum tube and to connect the camera and the monitor.

Operating conditions:

- ⌚ Operating temperature: 15 - 30 C °
- ⌚ Humidity: 50 – 75%

Connect the manipulator

Now connect the vacuum hose of the placement arm to the vacuum pump. Activate the pump with the power cable.

Now attach one of the supplied pipettes to the manipulator head and test by holding the selected hole to see whether there is negative pressure on the pipette.

Mount the monitor and connect it to the power supply. The 2nd power supply is for the camera. Please also connect. Finally connect the cinch cable to the monitor and set the source to AV1 in the monitor menu.

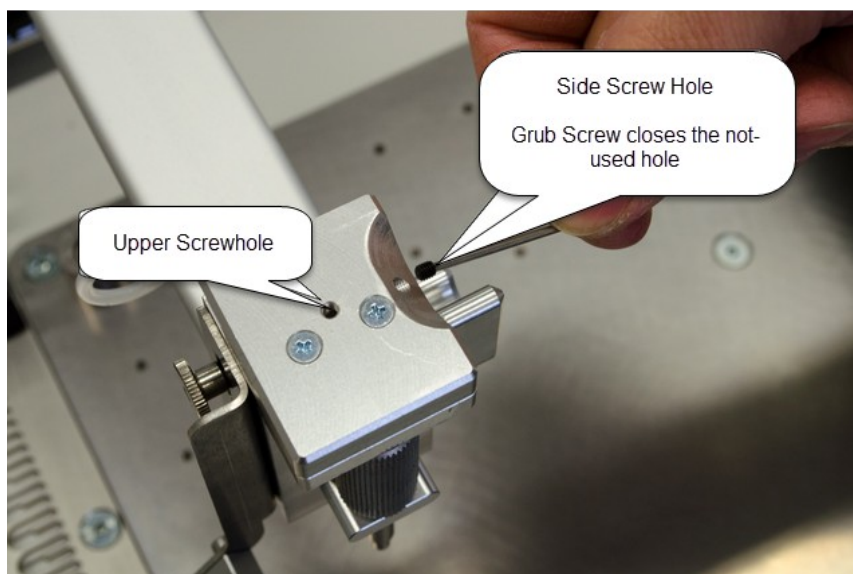


Caution

When setting up the manipulator, make sure that it is level and secure on the workplace. Otherwise the functionality could be restricted.

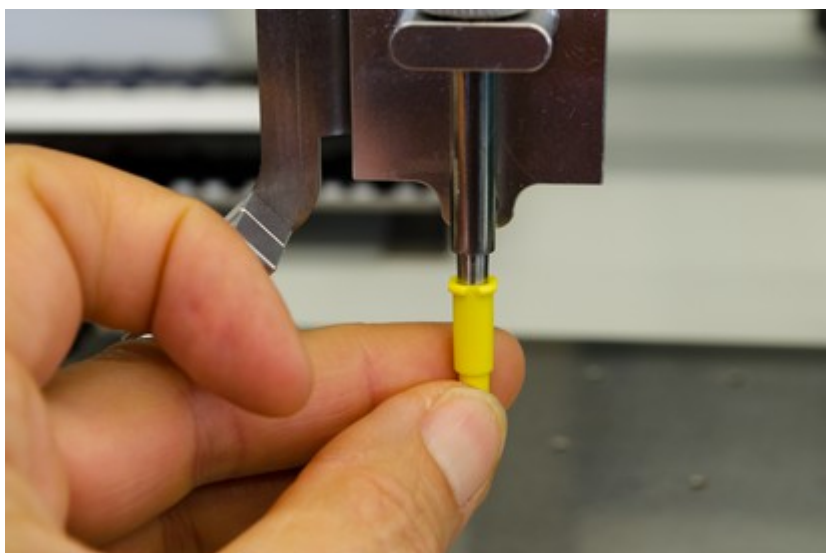
Vacuum drilling

The head of the SMT 3000 ECO is provided with two drill holes, which serve to create the required vacuum. Vacuum is created by closing the opening with a finger. The user can individually determine which one is better to use. One is on the top of the head and one is on the side. The unused is closed with the grub screw.



Assemble Pipettes

Various pipettes are available for the SMT 3000 ECO manipulator. They are simply stuck to the head from below.

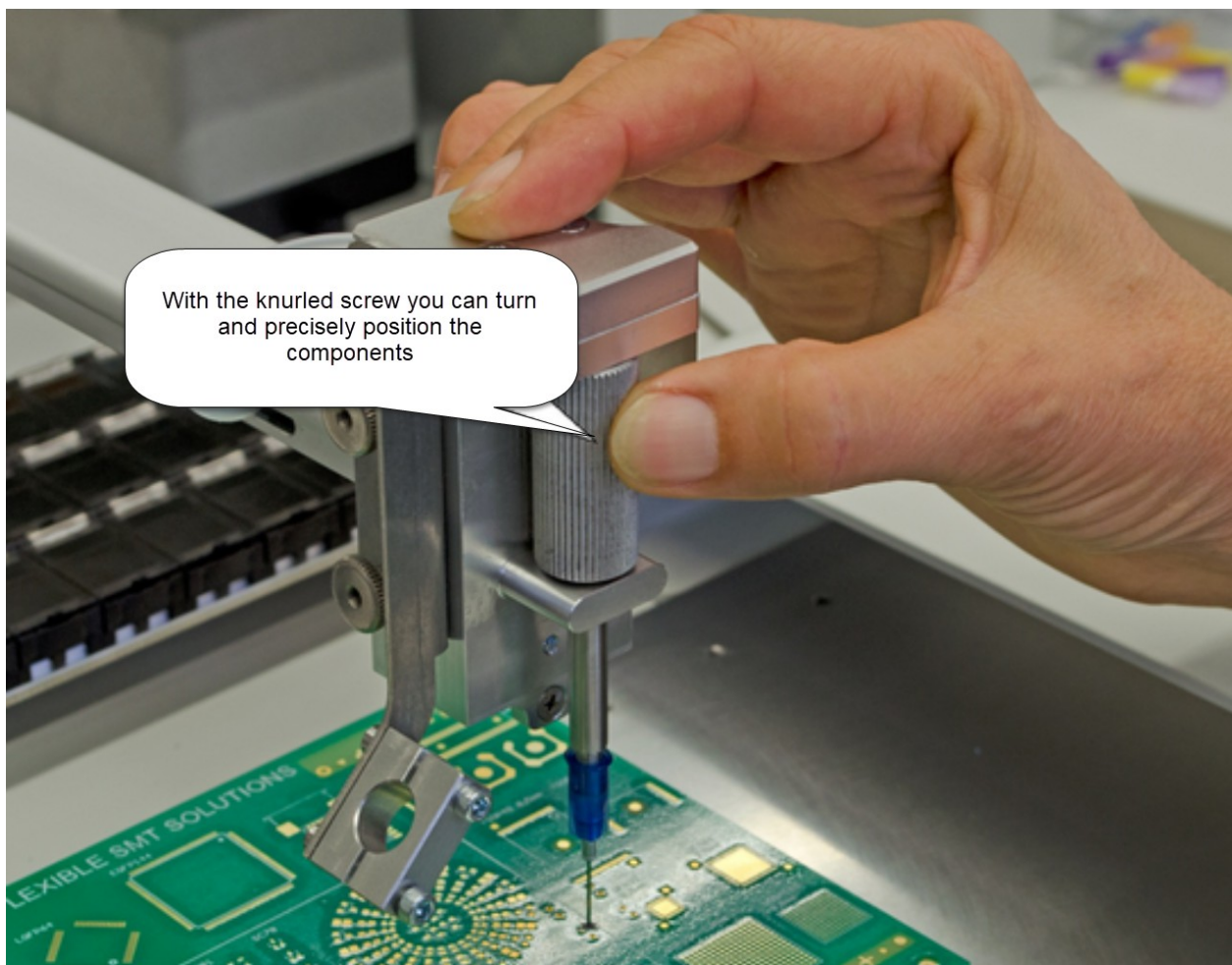


Function description

Picking up a component

First, make sure that the vacuum pump is switched on and that there is vacuum on the pipette. Take the manipulator head, close the vacuum hole with your finger and guide the pipette to the component feeder.

Pull the head down so that the pipette only slightly touches the component and suck in the corresponding component. Depending on the size, the component is sucked in when it is touched, or small components are drawn to the pipette by the vacuum just before touching it. Use the knurled screw to turn the component in the direction to be assembled.

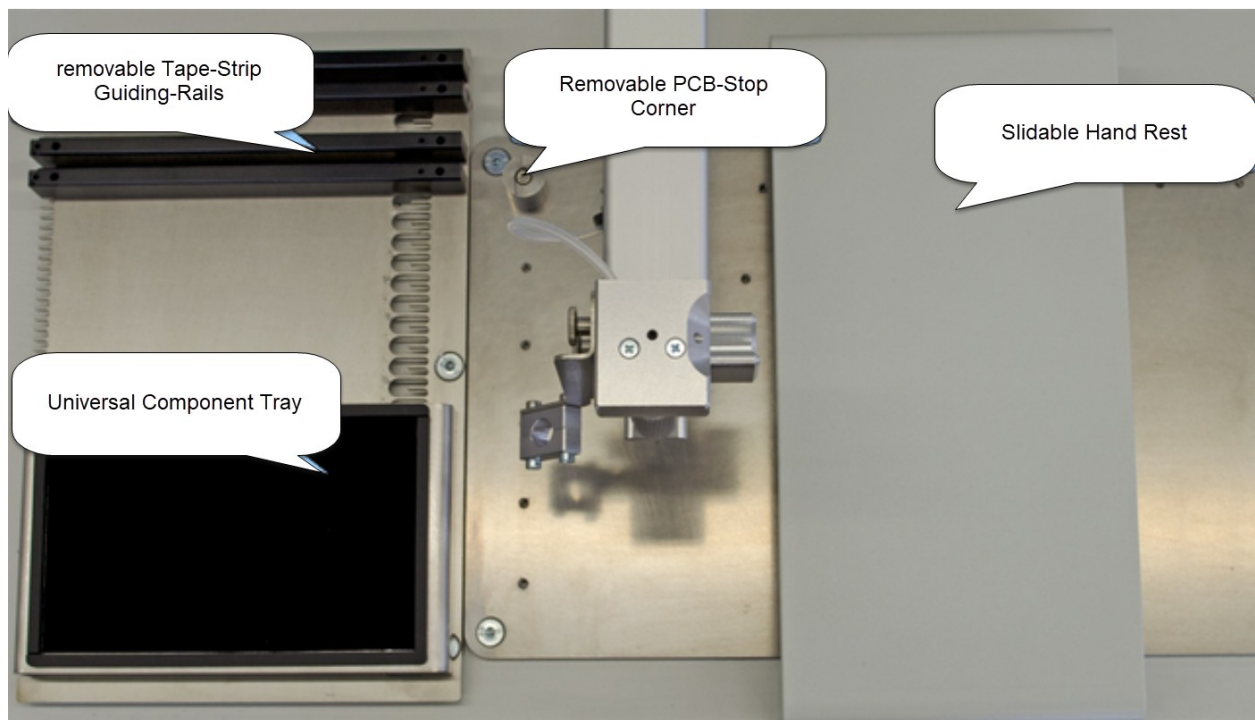


Set down the component

After you have picked up a component, move the manipulator head to the placement position and set the component down. By lifting your finger from the vacuum hole, you release the vacuum and the component remains in the appropriate position.

Setting options

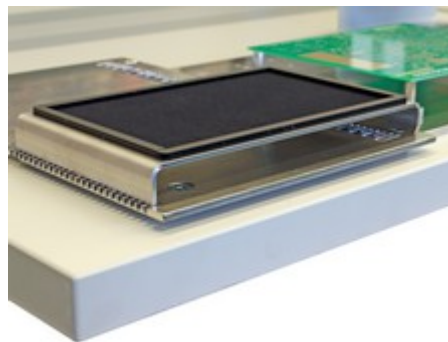
The SMT 3000 ECO from above:



Feeder

The following feeders can be attached directly to the base plate:

② Universal Component Tray



② Tape-Strip-Feeder



This feeder can be placed directly on the base plate:

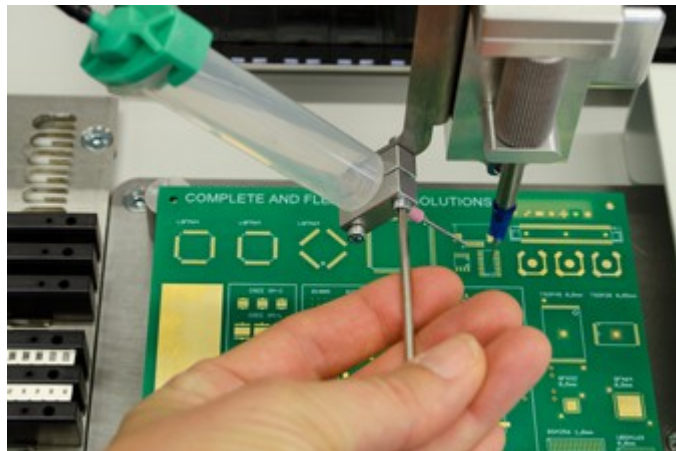
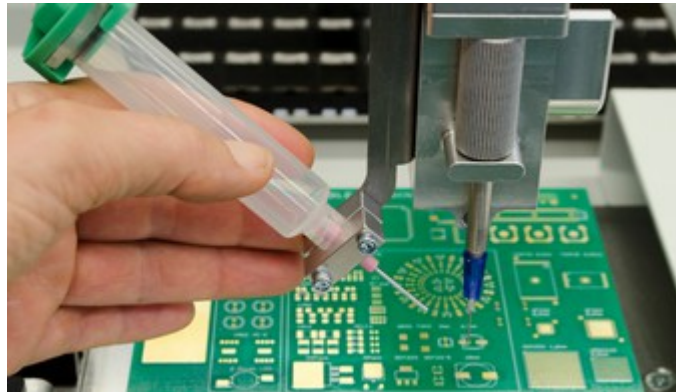
② Bulk container with container system



Optional dispensing device

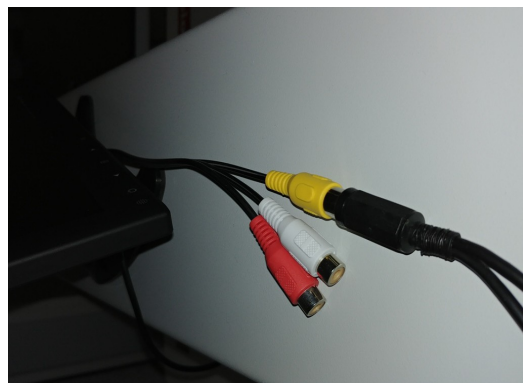
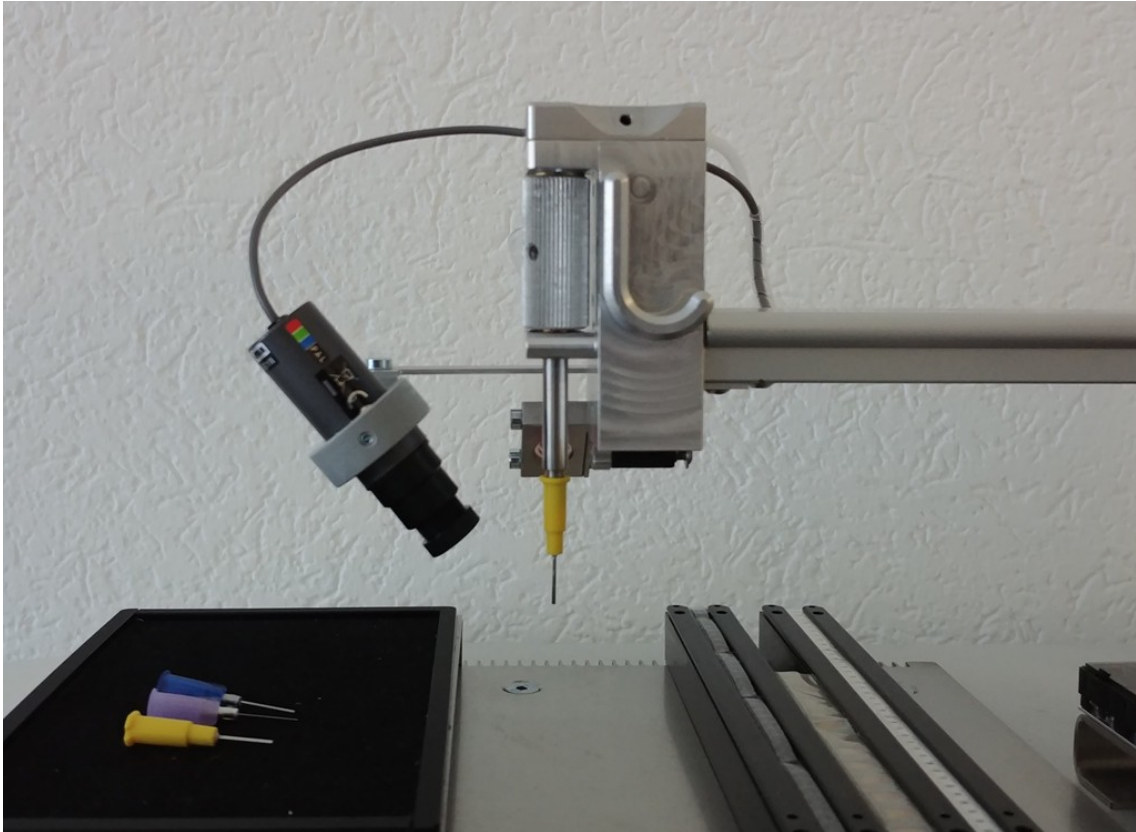
There is a holder on the left of the placement head, to which a cartridge for dispensing can be attached in a few simple steps.

For dispensing with the SMT 3000 ECO, a commercially available external dosing device is required, which is not included in the scope of delivery.




Camera attachment

There is a permanently installed camera attachment in front of the placement head. All you have to do is set up the monitor and connect the camera to the monitor and set it to AV1 in the monitor menu. The power supply for the camera is in the cardboard box of the monitor.



Amendment Monitor

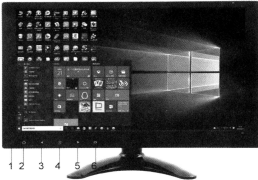
HDMI VGA AV MONITOR



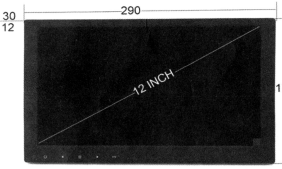
Please read this manual thoroughly before operating the unit,
And keep it for further reference.

OPERATION

Appearance and function



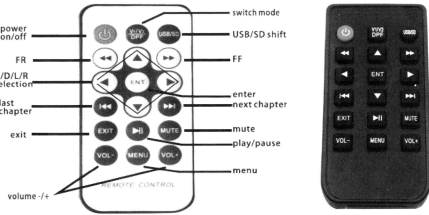
- 1.Remote receiving window
- 2.power ON/OFF press and hold 3seconds shutdown, short press to return
- 3.volume decrease, Left choice
4. press and hold 3 seconds for menu short press-OK
- 5.volume increase, Right choice
- 6.AV/VGA/HDMI/USB/TF switch (press two times for USB/TF switch) MENU mode for down select



HD DISPLAY MONITOR		
LENGTH	WIDTH	THICKNESS
MM	MM	MM
290	177	30

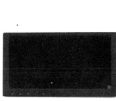




Remote control operation

(Two color black&silver remote control, same function)




SPECIFICATION

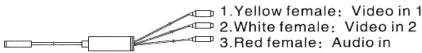
- 1, 12 inch dash-board VGA+HDMI+AV+USB+TF Display
- 2, HD IPS digital screen
- 3, screen resolution: 1920 × 1080
- 4, screen view angle: 170 degrees up/down/left/right
- 5, Brightness: 350cd/m2
- 6, 2-way HDMI IN support version: 1.1-1.4
- 7, VGA matching resolution: 1280 × 800
- 8, 2 video inputs, 1 audio input
- 9, built-in 2 2W hi-fi speakers
- 10, support U disk and (class 10) TF card to play video, pictures, music advertisement, etc.
- 11, support to play 1080P HD format video
- 12, high sensitivy touch button operation
- 13, full-function remote control
- 14, Multi-language menu
- 15, ultra-thin seamless design, three side 12MM only, middle 30MM
- 16, shell color: black
- 17, surface rubber coating processing
- 18, with a special mounting bracket, easy to install in any place
- 19, power: standard 12V
- 20, working temperature: 0 ~ 55 ° C, storage temperature: -30 ~ 70 ° C
- 21, appearance size: 290 × 177 × 30mm
- 22, Accessories: AV cable, remote control, bracket, home power supply, manual

CONNECTION INTERFACE



AV line:



Remarks:

1. DC12V working voltage.
2. VGA support 1280*1024 resolution max.
3. HDMI1,HDMI2 input support 1920*1080 resolution max.
4. HDMI support 1.1-1.4 two version, and 720P&1080P video display
5. USB/TF SLOT support: MPEG1/2/4, MPG, AVI, DIV, DIVX, DAT, VOB, RM RMVB, MKV

(For encoding video files need to transcode first before copy to U disc or TF card. TF card suggest use class10 for better video playback)

Customer service

We offer a factory customer service for Bungard SMD devices. If repairs are required, please send the device to your specialist dealer or area representative or directly to us.

We use an RMA form to accept a repair shipment. Please request this form from us before returning the goods. Without an RMA, we cannot guarantee that repairs will be carried out properly. A meaningful description of the fault is essential for quick and inexpensive repairs.

Please use the RMA form for this.

Guarantee

Prior to delivery all machines undergo an operational test on function and continuous strength. On the machine we provide a bring in warranty of 12 months from the date of purchase in respect of defects in material and workmanship. We offer a warranty at our choice by replacement of faulty parts or by repairing the machine in our factory. Old parts shall become our property.

Disclaimer of warranty

Bungard GmbH & Co.KG reserves the right to change or enhance its machines or machine specifications according to its judgement, if necessary. Bungard cannot be held responsible to implement aforesaid changes into machines sold already.

Bungard products and services are liable to the current prices and conditions, which are subject to change.

The instructions and definitions in this document are also subject to change and mark no assurance on the part of Bungard.

This manual contains informations of the Bungard SMT3000-ECO and is the translated English version.

Please regard the "Sales terms and delivery conditions". These are available after fulfilment of the contract. We don't furnish a guarantee or warranty in cause of damages at material or hurts of people because of

Incorrect use of the machine

Wrong setup, installing and operating of the machine or incapable service

Use of the machine with defective safety equipment

Non-observance of the service manual in regard to transport, stocking, setup, installation and service of the machine

Unlicensed modifications at the machine

Incorrect or incomplete repairs

Destructive force effect at the machine in cause of foreign objects or external use of force

Use of non-original spare parts

normal wear parts.

We cannot accept subsequent claims from damage or destruction of work pieces worked on in the machine, because we have no knowledge or control over the operating conditions at your site. This is valid in a general manner also for requirements from damage to articles, buildings and persons as well as the environment.

We do not warrant that the function of the machine will meet the customer's requirements or that the operation of the machine will to this regard be error free.

In no event will we be liable to the customer for any incidental, consequential, or indirect damages of any kind, including loss of profit and prosecution for environmental pollution, even if we could have been aware of the possibility of such damages.

All information was arranged with great care. We reserve ourselves however mistake and technical changes without previous announcement.

Running the machine in corroding, humid, dusty, extremely hot or explosive atmosphere happens at the operator's own risk and responsibility.

We explicitly exclude any warranty for damages resulting from running the machine in in corroding, humid, dusty, extremely hot or explosive atmosphere.

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