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ELITE CONTROL MODULE BASIC | DELUXE



Follow local or municipal regulations for recycling and disposal of the equipment.

ABOUT THIS MANUAL

OBJECTIVE

This manual is designed to help you get the most out of your Ransburg system. It provides information on the installation, operation, maintenance, and repair of your equipment. It contains information and procedures for routine maintenance as well as diagnostic and repair procedures for use in the event of a malfunction.

CONTENT

This manual is divided into chapters, which are each divided into sequentially numbered sections.

Chapters may contain text, images, or tables.

Where there are figures, the text contains numbers that refer to the applicable images, steps, and components.

Procedures are generally described only once. References to other chapters or sections are indicated by the chapter and section number. References without the word “Chapter” refer to sections or paragraphs within the same chapter as the reference.

Chapter 02. Contents.

Chapter 03. Conformity – A mandatory document in which the manufacturer declares that the product complies with EU requirements.

Chapter 04. Safety – Safety, hazard, and warning information.

Chapter 05. Product overview – Overview of the equipment and main components.

Chapter 06. Installation – Information on connecting the equipment.

Chapter 07. Operation – Information on operating the equipment.

Chapter 08. Maintenance – Information on potential malfunctions and troubleshooting.

Chapter 09. Parts identification – Identification of spare parts.

Chapter 10. Revision history – Revision and change history of this manual.

Chapter 11. Warranty provisions – Warranty information for your equipment.

TARGET AUDIENCE

This manual is intended for users with varying levels of knowledge and experience with this system.

- Installation personnel: Personnel who set up and connect the equipment.
- Operators: Personnel who work with the equipment.
- Service/maintenance personnel: Personnel who maintain and service this equipment.

This manual is written with the assumption that all persons who install, use, operate, and maintain this equipment have a basic understanding of the system and the associated standard technical procedures.

LIMITATION OF LIABILITY

All current and applicable certifications listed in this manual confirm that Binks complies with strict standards to meet the necessary legal requirements.

This manual was created using the most current information available at the time of publication. Binks accepts no liability for errors or omissions in this manual.

For further support and information about service, please contact your dealer or Binks Customer Service.

RELATED INSTRUCTIONS AND DOCUMENTS

PART NUMBER	DESCRIPTION
461959-XXXXB	Configuration Drawing ELITE KIT: 835091-XXXXXX-XXXXX.pdf
461959-XXXXD	
CMS-10004-CD	Configuration Drawing ACCESSORIES M5: CMS-10004-CD.pdf
CMS-10005-CD	Configuration Drawing ACCESSORIES A5: CMS-10005-CD.pdf

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03 CONFORMITY

03.1 EUROPEAN ATEX DIRECTIVE 2014/34/EU, ANNEX II

The following information applies to equipment covered by certificate FM 19ATEX0004X:

1. The equipment may be used with combustible dust with equipment Group II and temperature class T6.
2. The equipment shall be used in an ambient temperature of +10°C to +40°C.
3. Installation shall be performed by suitably trained personnel in accordance with applicable industry standards, such as EN 60079-14:2014. The power cord must be plugged into a power source that is not inside a classified zone.
4. Maintenance shall be performed by suitably trained personnel in accordance with applicable industry standards, such as EN 60079-17, EN 50050-2, or EN 50177.
5. Repair of this equipment shall be performed by suitably trained personnel in accordance with applicable industry standards, such as EN 60079-19.
6. Startup, use, installation, and setup of the equipment shall be performed by trained personnel in accordance with the manufacturer's documentation. Follow instructions to avoid potential hazards from electrostatic charge. See the following sections in "Contents" in this manual:
 - Installation
 - Operation
 - Maintenance
 - Parts identification
7. Components that are integrated into the equipment or that will be used as replacement parts shall be installed by trained personnel and in accordance with the manufacturer's documentation.
8. Equipment certification is contingent upon the following requirements related to materials used in the equipment:

If the equipment could come in contact with aggressive media, the operator shall take suitable precautions to ensure that the equipment is not adversely affected and to maintain the equipment's degree of protection.

Examples of aggressive media include acidic fluids that can attack metals, and solvents that can attack polymers.

Suitable precautions include regular inspections and confirming chemical resistance based on specification sheets.

See "Specifications" in the "Product overview" chapter.

 - The voltage multiplier is encapsulated in a solvent-resistant epoxy.
9. A summary of the certification marking is detailed in the "Product marking" section on the next page.
10. The equipment's parameters shall be specified, including data regarding electrical parameters and pressure.

During commissioning, the manufacturer shall provide the operating manual in its original language and in the official language(s) where the equipment will be operated.

03.2 PRODUCT MARKING

Ex Zone certificate number: FM 19ATEX0004X

- FM** Notified body that performs the EU type-examination
- 19** Year of examination
- ATEX** Reference to ATEX Directive
- 0004** Document serial number
- X** Special conditions for safe use apply*

Product marking

Ⓔ II 3(2) D

- Ⓔ Explosion protection marking
- II Characteristics of hazardous area of Equipment Group
- 3(2) Equipment Category
- D Type of explosive atmosphere (dust)



Illustration 1: Rear of Basic control module

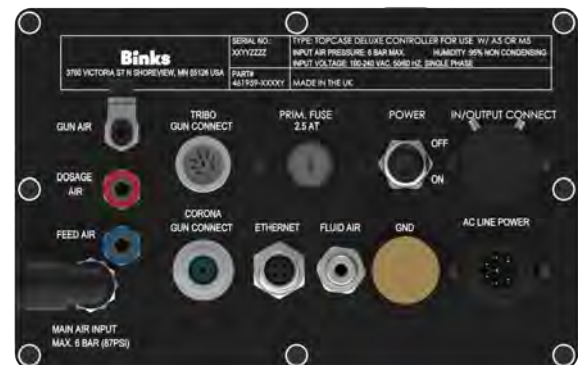


Illustration 2: Rear of Deluxe control module

*SPECIAL CONDITIONS FOR SAFE USE

1. The equipment must be used in accordance with EN 50050-2 for manual applications and EN 50177 for automatic applications.
2. The equipment must be configured in accordance with drawing 835091 or 805700 to be considered safe.
3. Comply with these instructions to avoid potential hazards from electrostatic charge.

FM CONFIGURATION

The equipment is FM and ATEX approved when the setup is in accordance with the corresponding Configuration Drawing (see → Chap. 10 [► 44]).

04 SAFETY

04.1 SAFETY PRECAUTIONS

Before the operation, maintenance, or servicing of this Binks system; fully read and understand all technical and safety literature for your product. This manual contains information that is important for you to know and understand.

This information relates to USER SAFETY and the PREVENTION OF EQUIPMENT PROBLEMS.

To help you understand this information, we use recognizable ANSI Z535 and ISO warning boxes and symbols throughout this manual. Please obey these safety sections.

DANGER

DANGER!: Indicates a hazardous situation that, if not avoided, will result in death or severe injury.

WARNING

WARNING!: Indicates a hazardous situation that, if not avoided, could result in death or severe injury.

CAUTION

Caution!: Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury, or equipment damage.

NOTICE

Notice: Indicates information considered important but not hazard related.

SAFETY

Safety: Indicates a type of safety instruction, or a separate panel on a placard, where specific safetyrelated instructions or procedures are described.

Careful study and continued use of this manual will provide a better understanding of the equipment functions and procedures.

This understanding will result in improved operation, efficiency, and longer, trouble-free service with faster and easier troubleshooting. If you need the necessary safety literature for your specific system, contact your local Binks representative or Binks directly.

NOTICE

This manual lists standard specifications and service procedures. Differences can occur between this literature and your equipment.

Differences in local or municipal codes, manufacturer or plant requirements, material delivery requirements, and more can make variations unpreventable. To find these differences, compare this manual to your system installation drawings and other applicable Binks equipment manuals.

WARNING

The user MUST read and be familiar with the Safety Section in this manual and the safety literature therein identified.

Only trained personnel can operate this equipment.

All personnel who operate, clean, or maintain this equipment MUST fully read and understand this manual! To operate and service the equipment, follow all WARNINGS and safety requirements. The user must be aware of and adhere to ALL local building and fire codes and ordinances, as well as NFPA 33 AND EN 16985 SAFETY STANDARDS, LATEST EDITION, or applicable country safety standards, before the installation, operation, or servicing of this equipment.

WARNING

The hazards shown on the pages that follow can occur during the normal use of this Binks equipment, but not all listed hazards will be applicable to your product model or equipment.

Repairs may only be performed by personnel authorized by Binks.

04.2 GENERAL SAFETY INSTRUCTIONS FOR POWDER COATING

AREAS INDICATE POSSIBLE HAZARD OCCURENCES.	HAZARDS INDICATE POSSIBLE HAZARDS.	SAFEGUARDS PREVENTION OF POSSIBLE HAZARDS.
Spray Areas 	Fire Hazards Improper or unsatisfactory operation and maintenance procedures will cause a fire hazard. If the safety interlocks are disabled during operation, protection against accidental arcing is shut off and can cause a fire or explosion. Frequent Power Supply or Controller shutdown identifies a problem in the system. For this occurrence, a correction will be necessary	Fire extinguishing equipment must be present in the spray area. Periodically run a test to make sure the equipment stays usable. Keep spray areas clean to prevent the build-up of combustible residues. Do not smoke in the spray area. The high voltage supplied to the atomizer must be turned off before the equipment is cleaned, flushed or maintained. Spray booth ventilation must be kept at the rates as set by NFPA-33, OSHA, country, local, and municipal codes. If flammable or combustible solvents are used to clean the equipment, ventilate the area. Prevent electrostatic arcing. Maintain spark-safe work distance between the parts that get coated and the applicator. A span of one inch for every 10KV of the output voltage is necessary. Do an equipment test only in areas free of combustible material. The test may necessitate the high voltage to be on, but only as instructed. Non-factory replacement parts or unauthorized equipment modifications can cause a fire or injury. The key switch bypass is used only during setup operation. Do no production work with disabled safety interlocks. Set up and operate the paint procedure and equipment under NFPA-33, NEC, OSHA, local, municipal, country, and European Health and Safety Norms.

AREAS INDICATE POSSIBLE HAZARD OCCURENCES.	HAZARDS INDICATE POSSIBLE HAZARDS.	SAFEGUARDS PREVENTION OF POSSIBLE HAZARDS.
Spray Areas 	Explosion Hazard Improper or unsatisfactory operation and maintenance procedures will cause a fire or explosion hazard. If the safety interlocks are disabled during operation, protection against accidental arcing is shut off and can cause a fire or explosion. Frequent Power Supply or Controller shutdown identifies a problem in the system. For this occurrence, a correction will be necessary.	Prevent electrostatic arcing. Maintain spark-safe work distance between the parts that get coated and the applicator. A span of one inch for every 10KV of output voltage is necessary. Unless specifically approved for use in hazardous locations, put all electrical equipment outside of Class I or II, Division 1 or 2 hazardous areas in accordance with NFPA-33, or outside of Zone 2 or Zone 22 in accordance with EN standards. If equipped, set the current overload sensitivity as described in the related section of the equipment manual. If incorrectly set, the current overload sensitivity for protection against accidental arcing is turned off and can cause a fire or explosion. Frequent power supply shutdown indicates a problem in the system, which requires correction. Always turn off the control panel power before the system is flushed, cleaned, or servicing the spray system equipment. Make sure no objects are within the spark-safe work distance before the high voltage is turned on. The control panel must interlock with the ventilation system and conveyor in accordance with NFPA-33, EN 50177. Fire extinguishing equipment must be present in the spray area. Periodically run a test to make sure the equipment stays usable. Do an equipment test only in areas free of combustible material.
General Use and Maintenance 	Improper or unsatisfactory operation and maintenance procedures will cause a fire hazard. Personnel must be correctly trained in the operation and maintenance of this equipment.	Train all personnel in accordance with the requirements of NFPA-33, EN 60079-0. Before equipment operation, personnel must read and understand these instructions and safety precautions. Obey appropriate local, municipal, state, and national codes governing ventilation, fire protection, operation maintenance, and housekeeping. Reference OSHA, NFPA-33, EN Norms, and your insurance company requirements.

AREAS INDICATE POSSIBLE HAZARD OCCURENCES.	HAZARDS INDICATE POSSIBLE HAZARDS.	SAFEGUARDS PREVENTION OF POSSIBLE HAZARDS.
Spray Area High Voltage Equipment 	Electrical Discharge This equipment contains a high-voltage device that can cause an electrostatic induction on ungrounded objects. This electrical charge is capable of igniting coating materials. Insufficient ground will cause a spark hazard. A spark can ignite many coating materials and cause a fire or explosion.	Operators in the spray area and the parts to be sprayed must be sufficiently grounded. All conductive objects inside the spray area must be grounded. Hold the parts that get sprayed on conveyors or hangers that are correctly grounded. The resistance between the parts and the earth-ground must not be more than 1 MΩ. Refer to: NFPA-33, EN 50177. Before the equipment is operated, ground all operators. They cannot wear rubber-soled insulated shoes. Wear ground straps on wrists or legs for sufficient ground contact. Operators must not wear or carry ungrounded metal objects. When used, operators must make complete contact with the handle of the electrostatic applicator. Use conductive gloves or gloves with the palm section cut out. Operators must wear grounded footwear. NOTE: REFER TO NFPA-33 OR SPECIFIC COUNTRY SAFETY CODES FOR GUIDANCE TO CORRECTLY GROUND THE OPERATOR. Except for objects needed for the high-voltage process, all electrically conductive objects in the spray area are to be grounded. Supply a grounded conductive floor in the spray area. Always turn off the applicator voltage before the system is flushed, cleaned, or when servicing the spray system equipment. Unless specifically approved for use in hazardous locations, put all electrical equipment outside of Class I or II, Division 1 or 2 hazardous areas in accordance with NFPA-33, or outside of Zone 2 or Zone 22 in accordance with EN standards. Do not install an applicator into a fluid system if the solvent supply is ungrounded. Do not touch an energized applicator electrode.

AREAS INDICATE POSSIBLE HAZARD OCCURENCES.	HAZARDS INDICATE POSSIBLE HAZARDS.	SAFEGUARDS PREVENTION OF POSSIBLE HAZARDS.
Spray Areas 	Toxic Fluid or Fumes Toxic fluids or fumes can cause severe injury or death if splashed in the eyes or on the skin, or if inhaled or swallowed.	Read the Safety Data Sheet (SDS) for instructions to know and understand how to handle the specific hazards of the fluids used, and the effects of longterm exposure. During the spray, clean, or servicing of equipment, or when in the work area, keep the work area fully ventilated. Always wear personal protective equipment (PPE) when in the work area or during equipment operation. Refer to the Personal Protective Equipment warnings in this manual. Store hazardous fluid in approved containers and refer to local, municipal, state, and national codes governing the disposal of hazardous fluids.
Spray Area and Equipment Use 	High-pressure fluid sprayed from the applicator, hose fittings, or ruptured/damaged components can pierce the skin. While this injury can appear as cut skin, this is a severe injury that can result in the amputation of the affected area.	Do not point or operate the spray applicator at the body part of a person. Do not put your hand or fingers over the applicator fluid nozzle or fittings in the hose or Proportioner. Do not try to stop or deflect leaks with your hand, glove, body, or shop rag. Do not “blowback” fluid, as the equipment is not an air spray system. Relieve pressure in the supply hoses, Proportioner, and QuickHeat™ hose before the equipment is inspected, cleaned, or serviced. Use the lowest possible pressure to recirculate, purge, or troubleshoot the equipment. Examine the hoses, couplings, and fittings every day. Service or immediately replace parts that leak, are worn, or are damaged. Replace high-pressure hose sections. They cannot be recoupled or serviced.

AREAS INDICATE POSSIBLE HAZARD OCCURENCES.	HAZARDS INDICATE POSSIBLE HAZARDS.	SAFEGUARDS PREVENTION OF POSSIBLE HAZARDS.
Equipment and Fluids 	Skin and Clothing Burns Equipment surfaces and fluids can become very hot during operation.	Do not touch hot fluid or equipment during operation. Do not let clothing touch the equipment during operation or immediately after the equipment is stopped. Let the equipment fully cool before the examination or servicing of the component.
Pressurized Aluminum Parts    	The use of certain solvents and chemicals can cause equipment damage and severe personal injury.	Do not use 1,1,1-trichloroethane, methylene chloride or other halogenated hydrocarbon solvents or fluids that contain such solvents. These solvents can cause a severe chemical reaction and equipment rupture that results in equipment and property damage, serious bodily injury, or death.
Spray Areas 	Do Not Touch The effect of paint flow rates and formulations on the quality of atomization can cause the turbines to rotate at high speeds.	Do not use a rag or gloved hand against the bell edge to stop or slow down a bell during rotation. Do not try to clean the bell edge during rotation.

04.3 ADDITIONAL SAFETY INFORMATION

⚠CAUTION

Do not start up the equipment until you have read this section.

Observe all local or municipal safety measures and wear approved protective equipment when servicing this equipment. Clean up spilled chemicals and materials and perform work in a clean and orderly environment to prevent injury and property damage.

⚠DANGER

To avoid injury or electric shock while the system is energized, do not touch, disconnect, or tamper with electrical connections or equipment. The main switch on the right side of the control module can be locked.

Follow lockout/tagout procedures (LOTO) before working inside the system controller.

If diagnosis and troubleshooting cannot be performed under standard operating conditions, these tasks may only be performed by qualified electricians.

⚠WARNING

To prevent chemicals from leaking when personnel are not on site, the air and fluid supplies to the equipment must be shut off when the equipment is shut down for an extended period, such as at the end of the day.

NOTICE

As part of initial commissioning and at regular intervals throughout the service life of the equipment, visually inspect all fluid connections for leaks.

All parts of this equipment must be visually inspected at regular intervals for signs of noticeable deterioration due to chemicals or other conditions in the equipment's environment.

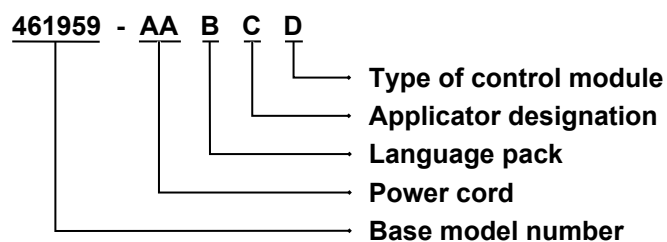
SAFETY

Comply with local or municipal regulations that require an installed fire suppression system for the operation of the equipment.

If the equipment, sensors, switches, or other devices are used in the presence of flammable gases and vapors, connect them via intrinsically safe barriers or Zener barriers. Classify them as "simple equipment" or have them approved for use in these areas.

05 PRODUCT OVERVIEW

05.1 IDENTIFICATION



POWER CORD – TABLE FOR AA

AA CODE	DESCRIPTION	PART #
00	No power cord	---
01	Power cord for EU	460147
02	Power cord for North America/Japan	460149
03	Power cord for China	460150
04	Power cord for Switzerland	460148
05	Power cord for UK	461881

LANGUAGE PACK – TABLE FOR B

B CODE	DESCRIPTION
1	English, French, Spanish, Portuguese, Italian, German, Chinese, Japanese (general language pack)
2	English, French, Spanish, Italian, German, Czech, Polish, Russian (Eastern Europe language pack)

APPLICATOR DESCRIPTION – TABLE FOR C

C CODE	DESCRIPTION
M	Manual powder applicator
A	Automatic powder applicator

TYPE OF CONTROL MODULE – TABLE FOR D

D CODE	DESCRIPTION
B	Basic
D	Deluxe



This unit is FM/ATEX approved for use inside a hazardous area. The operating company is responsible for proper use of this listed control module.

05.2 SCOPE OF DELIVERY

The following items are included with the elite control module:

SCOPE OF DELIVERY, ELITE CONTROL MODULE – PARTS LIST	
PART #	DESCRIPTION
461959-XXXXB oder 461959-XXXXD	elite Basic control module or elite Deluxe control module
460147 or 460148 or 460149 or 460150 or 461881	Power cord for EU or Power cord for Switzerland or Power cord for USA/Japan or Power cord for China or Power cord for UK
460146	Grounding cable with clamp
PA-19-08	This Service Manual in electronic form on a USB drive.

05.3 SPECIFICATIONS

DIMENSIONS

Weight	6.4 kg (14.2 lbs)
Depth	332.0 mm (13.06 in)
Width	200.6 mm (7.89 in)
Height	128.6 mm (5.06 in)

ELECTRICAL SPECIFICATIONS

Power supply	100 – 240 VAC
Frequency	50 – 60 Hz
Input power	70 W (with vibrator, 550 W)
Output voltage to applicator	10 V _{eff} maximum
Output current to applicator	1.4 A maximum
Output frequency to applicator	40 kHz
Output to vibrator	100 – 240 VAC/max. 70 W
Fuse	2.5 A

PNEUMATIC SYSTEM SPECIFICATIONS

Supply air pressure	6 bar (87 psig) maximum
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COMPRESSED AIR QUALITY PER ISO 8573.1

Residual water content in compressed air	1.3 g/m ³ maximum, dew point 7°C
Residual oil in compressed air	0.1 mg/m ³ maximum
Air flow rate	5 – 20 m ³ /h (176 – 706 cuft/hr)
Regulated output air pressure	0 – 5 bar (0 – 73 psig)

APPROVALS

Ingress protection 610190-10, 610190-11	IP 64
Interference suppression	FN
Temperature range	10° to 40°C (50 to 104°F) ambient
Certificates	FM 18US0005, FM 18CA0001, FM 19ATEX0004X

05.4 PRODUCT DESCRIPTION



The elite control module is designed exclusively for controlling powder applicators.

It controls and regulates the electrostatics and the air supply for powder application. Any other use is considered unintended use. The manufacturer is not liable for damage resulting from improper use.

05.5 COMPATIBILITY

The elite control module can be used with the following powder applicators:

COMPATIBILITY	
PART NUMBER OF ELITE CONTROL MODULE	COMPATIBLE POWDER APPLICATORS
461959-XXXXB (Basic)	elite A5 automatic powder applicator (835020)
461959-XXXXD (Deluxe)	elite M5 manual powder applicator (615210)



The combination of the elite control module with the elite M4 and A4 powder applicators is not FM/ATEX approved.

05.6 PRODUCT FEATURES

Features of the elite control module include:

- Powder program memory makes it possible to set powder program parameters such as feed air, dosing air, electrode air, kV, and μA at the push of a button.
- Two standard powder programs are provided for a quick starting point.
- You can create up to 94 additional custom powder programs.
- Electronic proportional valves regulate the air flow precisely.
- The elite control module provides processor-controlled regulation of output voltage (kV) and output current (μA).
- The Deluxe elite control module (461959-XXXXD) supports remote control via an Ethernet interface with Modbus protocol (see $\Rightarrow$ Chap. 07.6 $\blacktriangleright$ 33)).

06 INSTALLATION

06.1 SAFETY INFORMATION FOR INSTALLATION

⚠ WARNING

Users must read and understand the “Safety” section of this manual.

Personnel who operate, clean, or maintain this equipment must read this manual carefully and understand it. Ensure warnings and requirements for operation and maintenance are followed. Users must understand and comply with all local building and fire codes and ordinances as well as NFPA 33, OSHA, and all related country-specific safety standards before installing, operating, and/or servicing this equipment.

Only use approved powder applicators with the elite control module.

⚠ WARNING

Only use approved powder applicators with the elite control module (see → Chap. 05.5 [► 20]).

⚠ CAUTION

Observe safety regulations.

⚠ CAUTION

Unused connections on the rear of the elite control module must be protected with the supplied dust caps.

⚠ CAUTION

When assembling any system involving the elite control module, remove the power cord from the control module.

06.2 LOCATING THE CONTROL MODULE

⚠ CAUTION

The elite control module can be in ATEX Zone 22.

⚠ CAUTION

Do not locate the system controller near heat-producing equipment such as ovens or high-power lamps.



The elite control module is rated IP64 and therefore is resistant to environmental intrusion, such as from dust or moisture.

The elite control module can be installed in ATEX Zone 22 in accordance with federal, state, and local codes. The maximum ambient temperature of the installation area is 40°C (104°F).



The elite control module may be freestanding on any flat surface or placed on a shelf with optional wall mount brackets (1).

06.3 GROUNDING THE CONTROL MODULE

⚠ CAUTION

The supplied grounding cable (green/yellow) must be connected to the grounding screw of the electrostatic manual powder coating equipment. The grounding cable also must have a good metal-to-metal connection to the spray booth, powder recovery unit, and conveyor chain and must be connected to true earth ground.

For efficient powder coating and for safety (see safety regulations), the powder coating system must be properly grounded to true earth ground (copper rod driven into the ground). The control module comes with a grounding cable.



Illustration 3: Ground connection on the rear of the control module

The workpiece must be grounded for optimal powder coating. Improper workpiece grounding results in:

- Very poor wrap-around, poor efficiency
- Uneven coating thickness
- Back spray onto powder applicator and user
- A hazardous electrical charge being induced in the workpiece

06.4 CONNECTING THE POWER CORD

⚠ CAUTION

The power cord of the elite control module must be electrically interlocked with the exhaust system of the powder coating booth. The control module may only be switched on if the booth exhaust is on. If the ventilation is off, the control module must also be off.

The power cord must be plugged into a power source that is not inside a classified zone.



Illustration 4: Connection for the power cable on the rear of the control module

06.5 CABLE AND HOSE CONNECTIONS OF THE BASIC CONTROL MODULE

CONNECTION OF THE CONTROL MODULE			
CABLE/HOSE	CONNECTION	FROM	→ TO
Grounding cable ¹	GND (yellow/green)	Control module	True ground
Power cord	Line power	Main supply	Control module
Main air ²	Main air input	Main air	Control module
Control signal cable ¹	Input/output connection	Control module	Vibrator motor
Fuse ³	Main fuse		

CONNECTION OF THE MANUAL POWDER APPLICATOR			
CABLE/HOSE	CONNECTION	FROM	→ TO
Applicator air hose	Electrode air (green)	Manual powder applicator	Control module
Fluidizing air hose	Fluid air (fluidizing air, powder motor)	Control module	Powder box fluidization
Manual powder applicator, corona ⁴	Corona applicator connection	Manual powder applicator	Control module

CONNECTION OF THE POWDER INJECTOR			
CABLE/HOSE	CONNECTION	FROM	→ TO
Feed air hose	Feed air (blue)	Control module	Feed air connection to injector
Dosing air hose	Dosing air (red)	Control module	Dosing air connection to injector
Powder hose		Powder injector outlet	Powder applicator

1 Observe safety information

3 2.5 A (pre-installed)

2 6 bar (free of oil and water)

4 See powder applicator manual to confirm cable part number



For more information on connecting hardware to your control module, see the manual for your elite Cart powder coating system or powder applicator.

06.6 CABLE AND HOSE CONNECTIONS OF THE DELUXE CONTROL MODULE

CONNECTION OF THE CONTROL MODULE

CABLE/HOSE	CONNECTION	FROM	→	TO
Grounding cable ¹	GND (yellow/green)	Control module		True ground
Power cord	Line power	Main supply		Control module
Main air ²	Main air input	Main air		Control module
Control signal cable ¹	Input/output connection	Control module		Vibrator motor
Fuse ³	Main fuse			
Ethernet cable	Ethernet	Control module or PLC		Ethernet switch

CONNECTION OF THE AUTOMATIC POWDER APPLICATOR

CABLE/HOSE	CONNECTION	FROM	→	TO
Applicator air hose	Electrode air (green)	Automatic powder applicator		Control module
Fluidizing air hose	Fluid air (fluidizing air, powder motor)	Control module		Powder box fluidization
Automatic powder applicator, corona ^{4, 5}	Corona applicator connection	Manual powder applicator		Control module
Automatic powder applicator, Tribo ^{5, 6}	Tribo applicator connection, future	Automatic powder applicator		Control module

CONNECTION OF THE POWDER INJECTOR

CABLE/HOSE	CONNECTION	FROM	→	TO
Feed air hose	Feed air (blue)	Control module		Feed air connection to injector
Dosing air hose	Dosing air (red)	Control module		Dosing air connection to injector
Powder hose		Powder injector outlet		Powder applicator

1 Observe safety information

4 See powder applicator manual to confirm cable part number

2 6 bar (free of oil and water)

5 Only one applicator can be connected at a time.

3 2.5 A (pre-installed)

6 Future feature



For more information on connecting hardware to your control module, see the manual for your elite Cart powder coating system or powder applicator.



For information on using Modbus to communicate with the elite control module, see → Chap. 07.6 [► 33].

07 OPERATION

07.1 SAFETY INFORMATION FOR OPERATION

⚠ WARNING

- Users must read and understand the “Safety” section of this manual.
- Personnel who operate, clean, or maintain this equipment must read this manual carefully and understand it. Ensure warnings and requirements for operation and maintenance are followed. Users must understand and comply with all local building and fire codes and ordinances as well as NFPA 33, OSHA, and all related country-specific safety standards before and during installation, operation, and/or servicing of this equipment.
- Only use approved applicators with the elite control module.

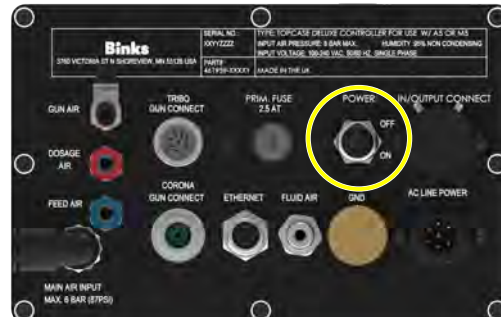
⚠ CAUTION

- Familiarize yourself with the operation of the equipment before turning it on.
- Use caution when the high voltage is on or being turned on. Do not touch the applicator nozzle.
- Do not stand in front of the powder applicator.
- Never point the powder applicator at people.
- Comply with safety regulations.

07.2 BASIC OPERATION

Turning on the control module

Turn on the elite control module using the switch on the rear of the control module. The system will start up.



Selecting the display language

Press the globe in the top right corner of the “WORK” screen to change the display language.



Press the flag for the desired language (see separate sales brochure for the current list of supported languages).



Press “EXIT” to return to the “WORK” screen. All screens including the “WORK” screen will now appear in the selected language.



Please contact customer service for questions about language pack availability.

Selecting the powder program

The control module has two pre-defined powder programs. These powder programs have presets for air, kV, and μA for powder coating with standard or metallic powder. Press “PROGRAMS” on the “WORK” screen to select a powder program.



The “PROGRAMS” screen opens.



Select the “STANDARD” or “METALLIC” program. Return to the “WORK” screen. The corresponding powder program settings load automatically. The top of the “WORK” screen shows that the selected powder program is active.



Enabling the powder applicator

A manual or automatic powder applicator may be attached to the elite control module. The procedure for enabling and triggering the applicator depends on the type of applicator. Manual applicators have a trigger that the user must press to apply the powder coating. Manual applicators are enabled via the control module screen. Automatic powder applicators are enabled via the control module screen or via a Modbus protocol command. See the section [⇒ Chap. 07.6 \[► 33\]](#) for information on operating automatic applicators via Ethernet using Modbus.

Powder coating with a manual powder applicator

Press “ON” on the “WORK” screen. This enables the manual powder applicator, but powder coating will not start.



Powder coating can start once the manual powder applicator is enabled and the elite Cart powder coating system is set up correctly (see the manual of the elite Cart powder coating system for details). Point the manual powder applicator at the workpiece and press the trigger to start the flow of powder. Once powder coating of the workpiece is complete, release the trigger of the manual powder applicator to stop the flow of powder.

To disable the manual powder applicator, press “OFF” on the “WORK” screen. Now powder will not flow even if the manual powder applicator is triggered.



Powder coating with an automatic powder applicator

The automatic powder applicator must be enabled on the "WORK" control module screen before powder coating can begin. The control buttons of the automatic powder applicator show "OFF" and "STOP" as the default status.



The buttons indicate the current status of the automatic powder applicator. Press a button to toggle its status. For example, to enable the automatic powder applicator, press "OFF." The button text will change to "ON." The automatic powder applicator is now enabled, but automatic powder coating will not begin until "START" appears on the "WORK" screen.



To begin powder coating using the automatic applicator, press "STOP." The button text will change to "START." Powder can flow from the applicator.



To stop the flow of powder from the automatic powder applicator, press "START" on the "WORK" screen. The button text will change to "STOP." The flow of powder will stop. However, the applicator is still enabled.

To disable the automatic powder applicator, press "ON" on the elite control module. The button text will change to "OFF." The automatic powder applicator is now disabled. Powder will not flow until the "OFF/ON" and "STOP/START" buttons are pressed again.



Press "ON" is while the screen shows "START" to change the buttons to "OFF" and "STOP."

Setting the powder program parameters

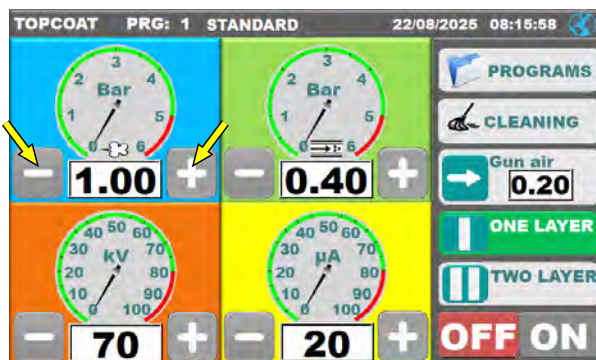
Press the number below a dial to open a number pad for setting the respective powder program parameter. Enter any value in range for the selected parameter.



The permissible ranges for air, kV, and μA appear in the top bar of the number pad. For example, pressing the number below the kV dial opens a number pad with the permissible kV range of 0 to 100 in the top bar.



You can also press the plus or minus buttons by the numbers. The program parameter will increase (+ button) or decrease (- button). Press and hold "+" or "-" to change the parameter in larger increments.





How much a parameter changes (increment) each time you press “+” or “-” is based on the configuration setting for the unit (bar, Nm³/h, or PSI) on the “WORK” screen.



Changes to settings are not saved to the powder program automatically and will be lost unless the powder program is saved.

Adjusting the electrode air on the Deluxe model

The “WORK” screen shows the current settings for the electrode air pressure. Similar to the numbers by the dials, pressing the number opens a number pad for changing the setting. Set this parameter to a value between 0.00 and 6.00 bar.

07.3 ADVANCED OPERATION

One-layer/two-layer operation

The elite control module supports two-pass coating (two coats). The controller can apply different control settings (kV and μ A only) for each layer.

The “WORK” screen has buttons for selecting the settings to be applied to the layer. The green buttons indicate which layer and settings are active.



See section $\Rightarrow$ Chap. 07.5 [► 30] for how to manage the settings for “TWO LAYER.”



“TWO LAYER” settings are re-read from the selected powder program. Therefore, adjustments made via the “WORK” screen before re-selecting “ONE LAYER” are lost when “TWO LAYER” is selected again.

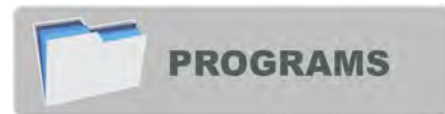
07.4 CREATING, MANAGING, AND DELETING POWDER PROGRAMS

Setting and saving powder program parameters

1. Check if the powder program you wish to manage is already shown as active on the “WORK” screen.



- ✓ If the powder program you wish to manage is active, skip to step 4.
2. If the powder program you wish to manage is not active, press “PROGRAMS” to go to the “PROGRAMS” screen.



3. Select the powder program you wish to manage from the program list. The “WORK” screen will automatically reopen. The program is now active.
4. Manage the program parameters using the “WORK” screen (electrode air, feed air, dosing air, kV, and/or μ A).
5. Press “PROGRAMS” to return the “PROGRAMS” screen.
6. Press “SAVE PROGRAM” to store the powder program with its new settings.



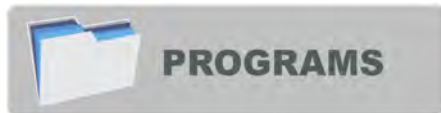
7. When you select that program from the “PROGRAMS” screen, it will appear on the “WORK” screen with the new powder program parameters.

Creating a new powder program



Check the program list on the “PROGRAMS” screen for an unused number before entering a number for a new program. This ensures you do not accidentally overwrite a program.

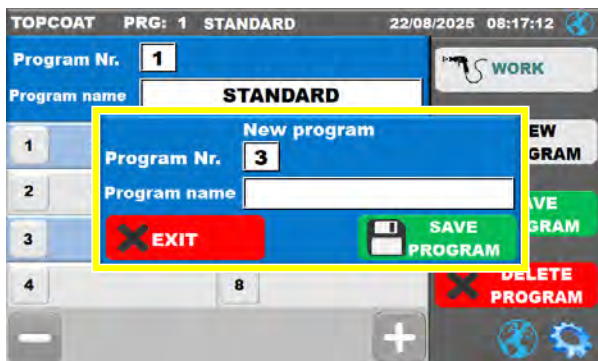
1. Press “PROGRAMS” to open the “PROGRAMS” screen.



2. Look through the “PROGRAMS” screen to find a number without settings in the program list. Remember this number and press “NEW PROGRAM.”



3. The “NEW PROGRAM” pop-up opens. Enter the program number in the “NEW PROGRAM” pop-up. Enter a name for the new program. (Press the text field to open a keyboard for entering this information.)



The elite control module will not allow you to select powder program 1 or 2 for a new program.

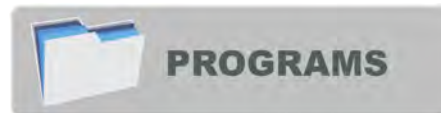
4. Press “SAVE PROGRAM” in the “NEW PROGRAM” pop-up. The “WORK” screen will automatically reopen.
5. Press “PROGRAMS” to open the “PROGRAMS” screen. The program with the parameters you just set is active. This means you can now save this program with the parameters you just set. Press “SAVE PROGRAM” to save the settings you just specified for your new program.



Deleting a powder program

Powder programs can be deleted at any time using the following procedure:

1. Press “PROGRAMS” on the “WORK” screen to open the “PROGRAMS” screen.



2. See the dark blue bar at the top of the “PROGRAMS” screen to check if the powder program you wish to delete is active. If the active powder program is not the powder program you wish to delete, perform the following steps:
 - ✓ Select the powder program you wish to delete from the program list.
 - ✓ After you select a powder program from the program list, the “WORK” screen automatically reopens. The powder program just selected is now active.
 - ✓ Press “PROGRAMS” on the “WORK” screen. When you return to the “PROGRAMS” screen, the selected powder program is active.

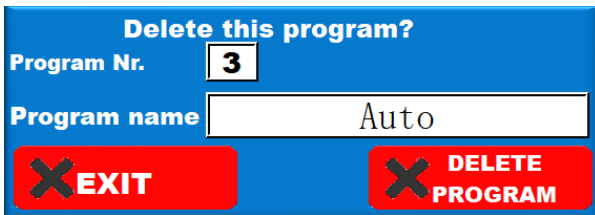


3. When the active powder program is the powder program you wish to delete, press “DELETE PROGRAM.”



The elite control module prevents you from deleting powder programs 1 or 2.

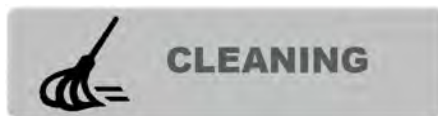
- Press "DELETE PROGRAM" in the confirmation pop-up to confirm program deletion.



- The system deletes the selected powder program, selects and loads powder program 1 (STANDARD), and returns to the "WORK" screen.

Starting a cleaning cycle

Press "CLEANING" on the "WORK" screen. A pop-up menu opens. Press "START CLEANING." Air will flow through the feed, dosing, and electrode air lines for a preset time to purge powder from the system. This prepares the system for the next powder coating cycle.



The default settings for wash pressure and wash cycle time are set at the factory. You can adjust these values on the configuration screens. If you have an elite Cart powder coating system, see PA-18-03.

07.5 CONFIGURATION SCREENS



You can only make changes when the trigger of the applicator is not pressed.

Opening the configuration screens

Perform the following steps to open the configuration menu:

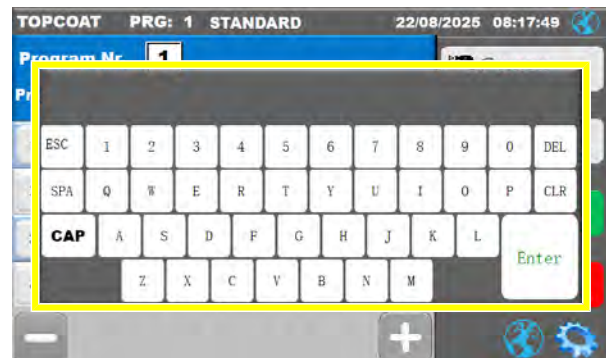
- Press "PROGRAMS" on the "WORK" screen.



- Press the gear icon in the bottom right corner of the "PROGRAMS" screen.



- Enter the password "MS100" (note: "CAP" is not highlighted) and press "Enter."



- The initial configuration setting screen appears. Use the arrow buttons at the bottom of each configuration screen to navigate between the four configuration screens. The right arrow moves forward a screen. The left arrow moves back a screen. Buttons that are green indicate currently selected choices. Press "PROGRAMS" to return the "PROGRAMS" screen. Press "BACK" to return to the "WORK" screen.



07.5.1 Configuration settings – screen 1

**Units (on “WORK” screen)**

Use the first panel of buttons, labeled “Unit,” to toggle the configurations on the “WORK” screen. Press a button to select its unit for the dial on the “WORK” screen. See the Appendix for more information on the settings for the units ⇒ Chap. 10.1 [► 44].

Applicator mode buttons (Tribo or corona)

The Tribo applicator option is reserved for future use. The corona applicator must be selected.

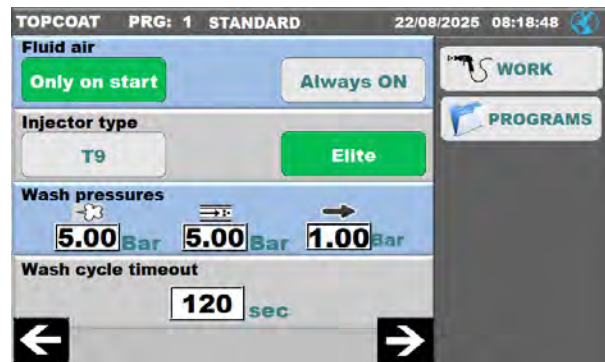
Two-layer mode

Press the numbers for kV and µA to manually set the parameters for the “TWO LAYER” program that can be selected on the “WORK” screen. Press the box with the kV or µA value to change a setting. A number pad for changing the value will open.

Production counter

The production counter tracks the applicator’s operating hours since the last reset of the counter. This counter can be reset to zero from the configuration screen at any time.

07.5.2 Configuration settings – screen 2

**Fluidizing air**

These buttons are only applicable if you are using a fluidized bed or fluidized box for your powder.

Injector type

The elite Cart powder coating system with vibratory box 805700-XVBXXX-XXXX uses the elite Injector. The T9 Injector is used with automatic applicators and carts with fluidized box 805700-XFHXXX-XXXX.

Wash pressure

Set the air pressures for feed, dosing, and electrode air for a wash cycle of the powder system.

Wash cycle duration

This value is the duration of the wash cycle in seconds. Set this value high enough to ensure that the purging air has time to purge the powder system.

07.5.3 Configuration settings – screen 3

**Program 1: Standard, and program 2: Metallic**

Use these sections to set the program parameters for both standard powder programs of the elite control module. These values are set at the factory but can be changed here.



The labels and settings of these parameters change based on the units selection on configuration screen 1.

Electrode air

With elite Deluxe control modules, electrode air must always be set when the “Proportional valve” button is selected and green.

Changing the applicator buttons

These buttons are set at the factory and cannot be changed.

07.5.4 Configuration settings – screen 4

**Applicator mode**

This setting is set at the factory and cannot be changed by the user. When the elite control module is delivered, it should be set for the type of powder applicator ordered (automatic or manual).

Signal frequency setpoint

These settings are set and calibrated at the factory and cannot be changed by the user.

Date and time

Press the date and time to open a number pad for changing these values.



The date format is DD/MM/YYYY.
The time format is 24-hour (e.g., enter 13:00 for 1 PM).

Software versions

The bottom of the screen shows information about the software version of the control module.

07.6 ETHERNET/MODBUS REGISTER

ETHERNET/MODBUS REGISTER			
REG	BIT	NAME	DESCRIPTION
1		REG_CTRL_WORD	CONTROL WORD REGISTER
	0	REG_CTRL_WORD_BIT_ON	Enable circuit board
	1	REG_CTRL_WORD_BIT_START	Start circuit board (if enabled)
	2	REG_CTRL_WORD_BIT_TRIBO_ON	Enable Tribo
	3	REG_CTRL_WORD_BIT_VALVE_PID_START_CMD	Valve PID direct start command
	4	REG_CTRL_WORD_BIT_TOPCOAT_GUN	0, manual; 1, automatic; topcoat
	5		
	...		
	8	REG_CTRL_WORD_BIT_CLOCK_IN	Communication clock-in from master
	9	REG_CTRL_WORD_BIT_WASH_ON	Enable Wash mode
	10	REG_CTRL_WORD_BIT_START_AUTO-TUNING	Start autotuning
	11	REG_CTRL_WORD_BIT_WR_FREQUENCY	Overwrite frequency with Reg 12 (CP2 only)
	...		
	15		
2		REG_SETPOINT_KV	kV setpoint
3		REG_SETPOINT_UA	μA setpoint
4		REG_SETPOINT_UA_TRIBO	μA Tribo limit
5		REG_SETPOINT_VALVE_BAR_1	Setpoint of valve 1 in bar*100
6		REG_SETPOINT_VALVE_BAR_2	Setpoint of valve 2 in bar*100
7		REG_SETPOINT_VALVE_BAR_3	Setpoint of valve 3 in bar*100
8		REG_PROGRAM_NUM_EDIT_POPUP	Pop-up to change the program number
9		REG_PROGRAM_NUMBER	Program number
10		REG_WASH_CTRL_WORD	WASH COMMAND WORD REGISTER
	0		
	1		
	2	REG_CTRL_WORD_BIT_VALVE_1_ON	Valve 1 ON
	3	REG_CTRL_WORD_BIT_VALVE_2_ON	Valve 2 ON
	4	REG_CTRL_WORD_BIT_VALVE_3_ON	Valve 3 ON

ETHERNET/MODBUS REGISTER			
REG	BIT	NAME	DESCRIPTION
	...		
	8	REG_CTRL_WORD_BIT_FLUID_ON	Fluidized box ON (0 = normal operation, 1 = always ON)
	9	REG_CTRL_WORD_BIT_VIBRATOR_ON	Vibrator ON (0 = normal operation, 1 = always ON)
	...		
	15		
11		REG_CHINA_BOARD	CHINA BOARD WORD REGISTER
	0	REG_CHINA_BOARD_BIT_START	Alternative start for China board
	...		
	15		
12		REG_FREQUENCY_SETPOINT	Frequency setpoint in Hz divided by 100 (CP2 only)
13		REG_AUTOTUNING_UA_LIMIT	µA limit for autotuning fail (CP2 only)
14		REG_SETPOINT_WASH_VALVE_1	Setpoint of wash valve 1 in bar*100
15		REG_SETPOINT_WASH_VALVE_2	Setpoint of wash valve 2 in bar*100
16		REG_SETPOINT_WASH_VALVE_3	Setpoint of wash valve 3 in bar*100
17		REG_CABLE_SELECTION	0000 = average standard conversion; 01[XX] = Inteso black cable ([XX] is length); 02[XX] = Igus green cable ([XX] is length)
18		Reserved	e.g., applicator group
19		REG_GUN_BTN_MANAGEMENT	APPLICATOR BUTTON MANAGEMENT
	0	REG_GUN_BTN_ENABLED	Applicator button enabled [0 = disabled; 1 = enabled]
	1	REG_GUN_BTN_CMD_LOGIC	Applicator button command logic [0 = inverse; 1 = direct]
	...		
	15		
19			
20		REG_UDM_SELECTION	UDM selection (LB = unit, HB = pressure percent mode)
21		REG_SETPOINT_1	Setpoint of valve 1 (feed percent powder pressure)

ETHERNET/MODBUS REGISTER

REG	BIT	NAME	DESCRIPTION
22		REG_SETPOINT_2	Setpoint 2 (total pressure dosing pressure)
23		REG_SETPOINT_3	Setpoint 3 (electrode air)
24		REG_INJECTOR_TYPE	Injector type (0 = T9; 1 = elite)
...			
46		Reserved	e.g., save ex. setpoint data on EEPROM
...			
51		REG_STATUS_WORD	STATIC STATUS WORD REGISTER
	0	REG_STATUS_WORD_BIT_ON	Enable circuit board
	1	REG_STATUS_WORD_BIT_START	Start circuit board
	2	REG_STATUS_WORD_BIT_TRIBO_ON	Enable Tribo
	...		
	8	REG_STATUS_WORD_BIT_CLOCK_OUT	Communication clock-out to master
	9	REG_STATUS_WORD_BIT_WASH_ON	Wash ON
	10	REG_STATUS_WORD_BIT_AUTOTUNING_RUNNING	Autotuning started
	11	REG_STATUS_WORD_BIT_AUTOTUNING_DONE	Autotuning complete
	12	REG_STATUS_WORD_BIT_AUTOTUNING_FAIL	Autotuning fail (current too high)
	13	REG_STATUS_WORD_BIT_BTN_MODE_SEL	Applicator selection mode button pressed (for manual applicator)
	14	REG_STATUS_WORD_BIT_BTN_INCREASE	Plus applicator button pressed (for manual applicator)
	15	REG_STATUS_WORD_BIT_BTN_DECREASE	Minus applicator button pressed (for manual applicator)
52		REG_ALM_WORD ALARM	WORD REGISTER
	0	REG_ALM_WORD_BIT_MISSING_UA_CORONA	Missing μ A for corona applicator
	1	REG_ALM_WORD_BIT_EXCEEDING_UA	μ A too high
	2	REG_ALM_WORD_BIT_MISSING_UA_TRIBO	Missing μ A for Tribo applicator
	3	Reserved	e.g., missing kV alarm
	4	Reserved	e.g., filter alarm

ETHERNET/MODBUS REGISTER

REG	BIT	NAME	DESCRIPTION
	5	REG_ALM_WORD_BIT_EXCEEDING_KV_CORONA	kV too high for corona applicator
	...		
	8	REG_ALM_WORD_BIT_COMM_ETH	Ethernet communication alarm
	9	REG_ALM_WORD_BIT_COMM_SERIAL	Serial communication alarm
	10	REG_ALM_WORD_BIT_SYNTH_OVERTEMP	Synthesizer overtemperature alarm
	11	REG_ALM_WORD_BIT_SYNTH_DC_OUTPUT_ALM	Synthesizer DC output alarm
	12	REG_ALM_WORD_BIT_SYNTH_UNDERVOLTAGE	Synthesizer undervoltage alarm
	...		
	15		
53		REG_FEEDBACK_KV	kV feedback
54		REG_FEEDBACK_UA_CORONA	μA corona feedback
55		REG_FEEDBACK_UA_TRIBO	μA Tribo feedback
56		Reserved	e.g., actual program
57		REG_FEEDBACK_FREQUENCY	Frequency feedback in Hz divided by 100 (CP2 only)
58			
59			
60		REG_CYCLE_TIME	Cycle time in ms
61		REG_TEST_PID_KP	PID KP test (scaled 1/1000)
62		REG_TEST_PID_KD	PID KD test (scaled 1/1000)
63		REG_TEST_PID_KI	PID KI test (scaled 1/1000)
64		REG_TEST_PID_KI_UA	PID KI test for μA (scaled 1/1000)
65		REG_TEST_PID_STEP_SLOW	PID step value (scaled 1/100)
66		REG_TEST_PID_THEORETICAL_VALUE	PID theoretical reference value
67		REG_TEST_PID_INTEGRAL_LIMIT	PID integral limit
68			
69		REG_PID_TEST_ENABLE	PID enable test

ETHERNET/MODBUS REGISTER

REG	BIT	NAME	DESCRIPTION
...			
80		REG_PID_KV_FB_ERROR	PID kV feedback error
81		REG_PID_KV_FB_ERROR_T1	PID kV error t1 feedback
82		REG_PID_KV_FB_ERROR_SUM	PID kV error sum feedback
83		Reserved	e.g., PID μ A error feedback
84		Reserved	e.g., ex. PID μ A error t1 feedback
85		PID_UA_FB_ERROR_SUM	PID μ A error sum feedback
86		Reserved	e.g., PID μ A input
87		Reserved	e.g., PID kV input
88			
89			
90		Reserved	e.g., barcode/type
91		REG_SW_VERSION	Software version
92		REG_PRINT_TYPE	Print type [0 = "CP1", 1 = "CP2"]
93			
94		REG_FB_VALVE_1_BAR	Valve 1 feedback in bar*100
95		REG_FB_VALVE_2_BAR	Valve 2 feedback in bar*100
96		REG_FB_VALVE_3_BAR	Valve 3 feedback in bar*100
97		REG_PID_V1_ERROR_SUM	PID valve 1 error sum
98		REG_PID_V2_ERROR_SUM	PID valve 2 error sum
99		REG_PID_V3_ERROR_SUM	PID valve 3 error sum
100		REG_PID_V1_OUTPUT	PID valve 1 output
101		REG_PID_V2_OUTPUT	PID valve 2 output
102		REG_PID_V3_OUTPUT	PID valve 3 output
103		REG_FB_VALVE_3_PSI	Valve 3 PSI feedback
104		REG_FB_VALVE_3_NM3H	Valve 3 feedback in Nm ³ /hour*10
105		REG_FB_TOTAL_AIR_PERC	Feedback of total air percentage for powder
106		REG_FB_TOTAL_AIR_PSI	Total air feedback in PSI
107		REG_FB_TOTAL_AIR_NM3H	Total air feedback in Nm ³ /hour*10
108		Reserved	e.g., alarm phase

ETHERNET/MODBUS REGISTER

REG	BIT	NAME	DESCRIPTION
109			
110		REG_FB_DI	DIGITAL INPUT FEEDBACK REGISTER
	0	REG_FB_DI_BIT_TRIBO_REED	Digital input, Tribo reed feedback
	1	REG_FB_DI_BIT_BTN_MODE_SEL	Digital input, mode selection button feedback
	2	REG_FB_DI_BIT_WASH_EXT_START	Digital input, wash, external start feedback
	3	REG_FB_DI_BIT_BTN_INCREASE	Digital input, increase button feedback
	4	REG_FB_DI_BIT_CORONA_REED	Digital input, corona reed feedback
	5	REG_FB_DI_BIT_BTN_DECREASE	Digital input, decrease button feedback
	...		
	8	SYNTH_OVERTEMP_ALM	Digital input, synthesizer overtemperature alarm
	9	SYNTH_DC_OUTPUT_ALM	Digital input, synthesizer DC output alarm
	10	SYNTH_UNDERVOLT_ALM	Digital input, synthesizer undervoltage alarm
	11		
	12	REG_FB_DI_BIT_DIP_0	Digital input, DIP switch 0 feedback
	13	REG_FB_DI_BIT_DIP_1	Digital input, DIP switch 1 feedback
	14	REG_FB_DI_BIT_DIP_2	Digital input, DIP switch 2 feedback
	15	REG_FB_DI_BIT_DIP_3	Digital input, DIP switch 3 feedback
111		REG_FB_DO 111	DIGITAL OUTPUT FEEDBACK REGISTER
	0	REG_FB_DO_BIT_RELAY	Digital output, relay feedback
	1	REG_FB_DO_BIT_LED44	Digital output, LED 44 feedback
	2	REG_FB_DO_BIT_BOARD_START	Digital output, circuit board start feedback
	3	REG_FB_DO_BIT_VIBRATOR_FLUID	Digital output, vibrator and fluid valve feedback
	4	REG_FB_DO_BIT_DO3	Digital output 3 feedback
	5	REG_FB_DO_BIT_GUN_ALM	Digital output, applicator alarm feedback
	6	REG_FB_DO_BIT_LED42	Digital output, LED 42 feedback
	7	REG_FB_DO_BIT_LED43	Digital output, LED 43 feedback
	8	Reserved	e.g., digital output, relay 1 feedback
	9	Reserved	e.g., digital output, relay 2 feedback
	...		

ETHERNET/MODBUS REGISTER			
REG	BIT	NAME	DESCRIPTION
	15		
112		REG_FB_ROTARY_SWITCH	Rotary switch feedback
113		REG_FB_COM	COMM. AND EEPROM FEEDBACK REG.
	0	REG_FB_COM_MASTER_RX	Master in rx
	1	REG_FB_COM_MASTER_TX	Master in tx
	2	REG_FB_COM_SLAVE_RX	Slave in rx
	3	REG_FB_COM_SLAVE_TX	Slave in tx
	4	REG_FB_EEPROM_RD	EEPROM ready
	5	REG_FB_EEPROM_WR	EEPROM in write mode
	...		
	15		
114		REG_OSCILLATOR_OUTPUT	Oscillator output
115		REG_FB_UA_CORONA_ADC	Direct ADC feedback for μ A, CORONA
116		REG_FB_UA_TRIBO_ADC	Direct ADC feedback for μ A, TRIBO
117		REG_FB_KV_ADC	Direct ADC feedback for kV
118		REG_FB_VALVE_1_ADC	Direct ADC feedback for valve 1
119		REG_FB_VALVE_2_ADC	Direct ADC feedback for valve 2
120		REG_FB_VALVE_3_ADC	Direct ADC feedback for valve 3
...			
127			

Table 1: Ethernet register of the control module

AUTOTUNING

When circuit boards are installed in a Binks system, they must be tuned upon first use. This is accomplished using the HMI and documentation provided with the Binks System.

08 MAINTENANCE

08.1 REPLACING THE FUSE

⚠ CAUTION

Components inside the elite control module are inaccessible for servicing by the end-user.

1. Insert a screwdriver into the fuse holder.
2. Turn the screwdriver counterclockwise until the fuse holder loosens.
3. Remove the fuse holder from the rear of the control module.
4. Replace the blown fuse with a new one.
5. Place the fuse and holder back in the appropriate opening on the rear of the elite control module.
6. Turn the screwdriver clockwise to secure the fuse and holder.



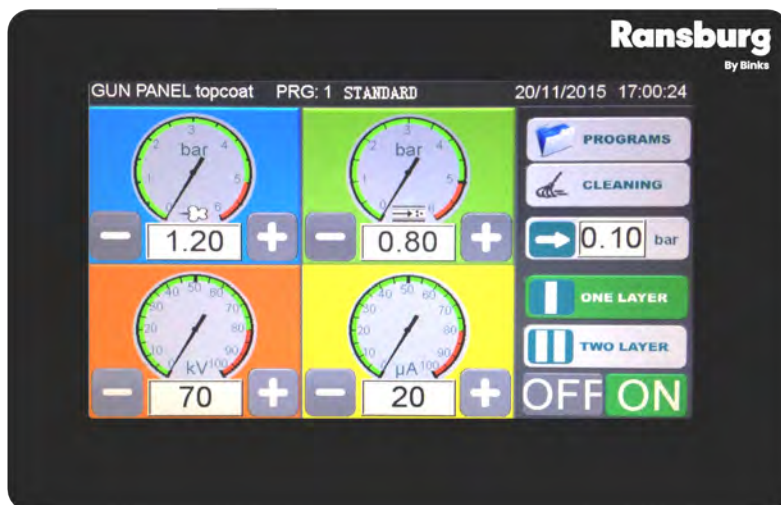
**Rear of Basic
control module**



**Rear of Deluxe
control module**

09 PARTS IDENTIFICATION

09.1 ELITE CONTROL MODULE

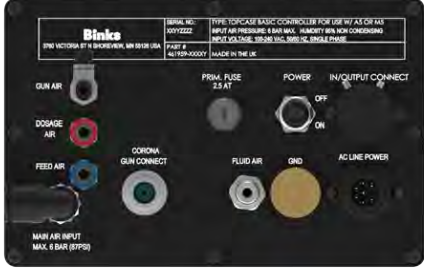


ELITE CONTROL MODULE – PARTS LIST

PART #	DESCRIPTION
461959-XXXXB	elite control module, Basic
461959-XXXXD	elite control module, Deluxe
460146	Grounding cable with clamp
460147	Power cord for EU
460148	Power cord for Switzerland
460149	Power cord for USA/Japan
460150	Power cord for China
461881	Power cord for UK
PA-19-08	This Service Manual in electronic form on a USB drive.
418735	Fuse, 5X20 mm, 250 VAC, 2.5 W, 10 A

09.2 OPTIONS FOR THE ELITE CONTROL MODULE

One of the following elite control modules will be delivered the order:

OPTIONS FOR THE ELITE CONTROL MODULE – PARTS LIST		
PART #	DESCRIPTION	IMAGE
461959-XXXXB	Basic	
461959-XXXXD	Deluxe	

09.3 OPTIONS FOR THE POWER CORD

You may receive a different power cord based on which option designation you ordered for the control module. The following table lists the power cord associated with each option designation. The power cord must be connected to a power source outside the classified zone.



OPTIONS FOR THE POWER CORD – PARTS LIST		
AA CODE	PART #	DESCRIPTION
00	---	No power cord
01	460147	Power cord for EU
02	460149	Power cord for North America/Japan
03	460150	Power cord for China
04	460148	Power cord for Switzerland
05	461881	Power cord for UK

09.4 GROUNDING CABLE**GROUNDING CABLE – PARTS LIST**

PART #	DESCRIPTION
460146	Grounding cable with clamp

09.5 LANGUAGE PACK**LANGUAGE PACK – PARTS LIST**

PART #	DESCRIPTION
461959-AA-1-C-D	General language pack
461959-AA-2-C-D	Eastern Europe language pack

10 APPENDIX

10.1 INFORMATION ABOUT THE INDICATIONS FOR UNITS

Changing the “WORK” screen configurations – units (bar, PSI, Nm³/h)

There are three configuration options for the units of the dials on the “WORK” screen. “WORK” screen configurations are based on the units the powder program parameters are measured and displayed in: bar, PSI, or Nm³/h. The differences between these three configurations are explained below.

“WORK” screen display configuration – bar

The “WORK” screen appears as shown here when the unit is set to bar.



“WORK” SCREEN DISPLAY CONFIGURATION – BAR

LOCATION OF DIAL	MEANING OF DIAL	NOTE
Top right	Dosing air pressure in bar	Measured directly by the sensor
Top left	Feed air pressure in bar	Measured directly by the sensor
Bottom left	kV at end of applicator	
Bottom right	μA at end of applicator	

“WORK” screen display configuration – PSI

The “WORK” screen appears as shown here when the unit is set to PSI.

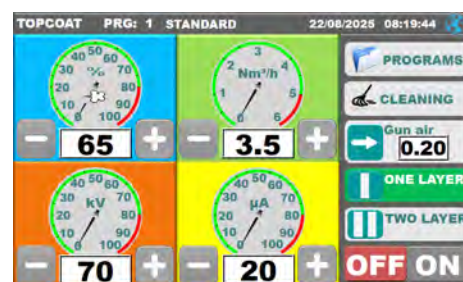


“WORK” SCREEN DISPLAY CONFIGURATION – PSI

LOCATION OF DIAL	MEANING OF DIAL	NOTE
Top right	Feed air pressure + dosing air pressure in PSI	Can be set to 0 to 80 PSI
Top left	Percentage of (feed air pressure + dosing air pressure) that is feed air	
Bottom left	kV at end of applicator	
Bottom right	μA at end of applicator	

“WORK” screen display configuration – Nm³/h

The “WORK” screen appears as shown here when the unit is set to Nm³/h.



“WORK” SCREEN DISPLAY CONFIGURATION – NM³/H

LOCATION OF DIAL	MEANING OF DIAL	NOTE
Top right	Feed air flow + dosing air flow in Nm ³ /h	Can be set to 0 to 6 Nm ³ /h
Top left	Percentage of (feed air flow + dosing air flow) that is feed air	
Bottom left	kV at end of applicator	
Bottom right	µA at end of applicator	

For user-created powder programs (3 – 96), the configured unit is saved as part of the powder program. When the powder program is selected and active, the system uses the units that were used when the powder program was saved.

When one of the factory preset powder programs (1 – 2) is selected and active, the units remain as they were for the last active powder program.



Show the configuration of the unit and save/select powder programs.

“WORK” SCREEN – INCREMENTS OF +/-

UNIT	INDICATION IN TOP LEFT (INCREMENT FOR ONE PRESS OF +/-)	INDICATION IN TOP RIGHT (INCREMENT FOR ONE PRESS OF +/-)
bar	0.05 bar	0.05 bar
PSI	5%	1 (feed air pressure + dosing air pressure)
Nm ³ /h	5%	0.1 (feed air flow + dosing air flow)

10.2 ELITE KIT

835091 - AAA BBB - ZZ Y X W

CONFIGURED ITEMS

CONTROLLEPLUG PACKAGE - FOR AUTOMATIC APPLICATORS SEE TABLE 3, SHEET 2
FOR MANUAL APPLICATORS SEE TABLE 6, SHEET 3

HOSE/CABLE ASSY¹ - FOR AUTOMATIC APPLICATORS SEE TABLE 2, SHEET 2
FOR MANUAL APPLICATORS SEE TABLE 5, SHEET 3

KIT SELECTION² - FOR AUTOMATIC APPLICATORS SEE TABLE 1, SHEET 2
FOR MANUAL APPLICATORS SEE TABLE 4, SHEET 3



OR

KIT

SELECTION

&



NOTES:

1. FOR AUTOMATIC APPLICATORS, SEE SHEET 2

2. FOR MANUAL APPLICATORS, SEE SHEET 3

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ITEM	PART NO.	DESCRIPTION	AUTOMATIC QUANTITY
1	835020	AUTOMATIC APPLICATOR	1
2	SEE TABLE 1	KIT PURPOSE AND DESCRIPTION	1
3	SEE TABLE 2	AUTOMATIC POWER HOSE/CABLE ASSY	1
4	SEE TABLE 3	CONTROLLER/PLUG PACKAGE	1

TABLE 1 - KIT PURPOSE AND DESCRIPTION		
KIT DIGITS "AAA"	ITEM 2 PART NUMBER	KIT DESCRIPTION
AA1	-	BASE REPLACEMENT PACKAGE (APPLICATION/CONTROLLER ONLY)
AA2	869800	MS ELITE AUTOMATIC GUN MOUNTING KIT
AA3	869860	MS ELITE AUTOMATIC BODY RETENTION KIT

TABLE 2 - POWDER HOSE/CABLE ASSY			
HOSE CABLE ITEM 3 PART DIGIT "BBB"	NUMBER	DESCRIPTION	QUANTITY
AA1	461973-12	12M CABLE ONLY	1
AA2	461973-16	16M CABLE ONLY	1
AA3	461973-20	20M CABLE ONLY	1
AA4	461973-25	25M CABLE ONLY	1
AA1	TBD	25M CABLE POWER HOSE	-
AA2	610194-17	16M CABLE POWER HOSE	1
AA3	TBD	20M CABLE POWER HOSE	-
AA4	TBD	25M CABLE POWER HOSE	-
AA1	610194-12	12M CABLE POWER HOSE	1
AA2	610194-16	16M CABLE POWER HOSE	1
AA3	610194-20	20M CABLE POWER HOSE	1
AA4	610194-25	25M CABLE POWER HOSE	1

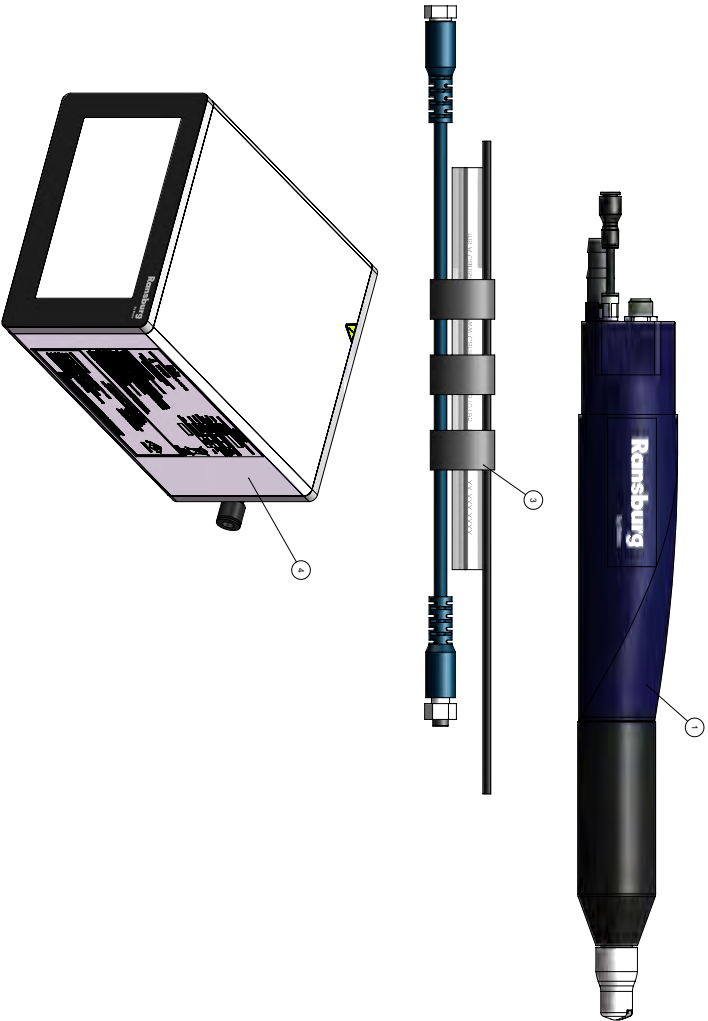
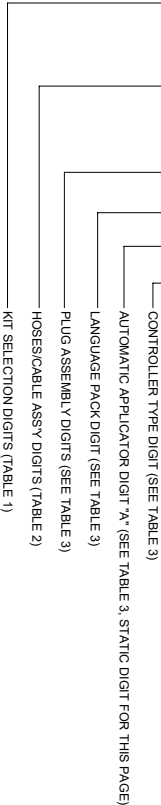
TABLE 3 - CONTROLLER/PLUG PACKAGE	
ITEM 4 PART NUMBER 461999-ZZ 1 A W	
PLUG ASSEMBLY DIGIT "ZZ"	DESCRIPTION
00	PLUG ASSEMBLY EUROPEAN ELITE GART (230V)
02	PLUG ASSEMBLY EUROPEAN ELITE GART (115V)
03	PLUG ASSEMBLY CANADIAN ELITE GART (115V)
04	PLUG ASSEMBLY CHINA ELITE GART (230V)
05	PLUG ASSEMBLY CHINA ELITE GART (115V)
LANGUAGE PACK DIGIT "Y"	DESCRIPTION
1	GENERAL LANGUAGE PACK
2	EASTERN EUROPEAN LANGUAGE PACK
APPLICATOR TYPE DIGIT	DESCRIPTION
A	USED WITH AUTOMATIC GUN
CONTROLLER DIGIT "W"	DESCRIPTION
1	BASIC
2	DELUXE

NOTES

1. LISTED BUT NOT SHOWN

2. THIS CONVERSION DRAWING IS FOR CONNECTION TO AUTOMATIC APPLICATOR 869820. ALL APPROVED ACCESSORIES OF THAT MODEL. (SEE CIMS 10005-CD) MAY BE USED AND ACCEPTED WITH THIS CONFIGURATION.

AUTOMATIC APPLICATOR CONVERSION KIT 835091- AAA BBB - ZZ Y A W



ITEM	PART NO.	DESCRIPTION	MANUAL QUANTITY
1	615210	MANUAL APPLICATOR	1
2	SEE TABLE 4	KIT PURPOSE AND DESCRIPTION	1
3	SEE TABLE 5	MANUAL POWER HOSE - CABLE LENGTH	1
4	SEE TABLE 6	CONTROLLER PACKAGE	1

TABLE 4 - KIT PURPOSE AND DESCRIPTION		
KIT DIGITS	ITEM 2 PART NUMBER	KIT DESCRIPTION
AAA	-	BARE REPAIR ASSEMBLY PACKAGE (APPLICATOR/CONTROLLER ONLY)
M01	805750	M5 ELITE MANUAL WALL MOUNT KIT
M02	805750	M5 ELITE MANUAL WALL MOUNT KIT
M03	805755	M5 ELITE SINGLE TO DUAL CONVERSION KIT
M04	805800	M5 ELITE MANUAL KIT WITH 19 GPC PUMP
M05	610322	PUSH TO CONNECT INJECTOR

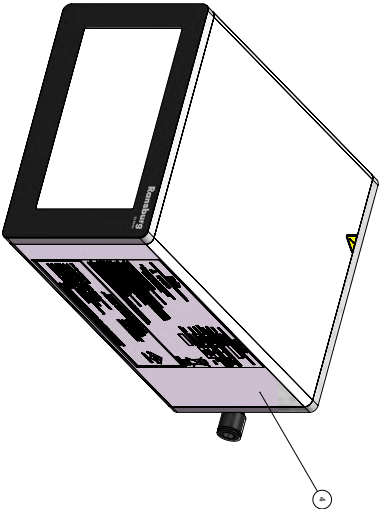
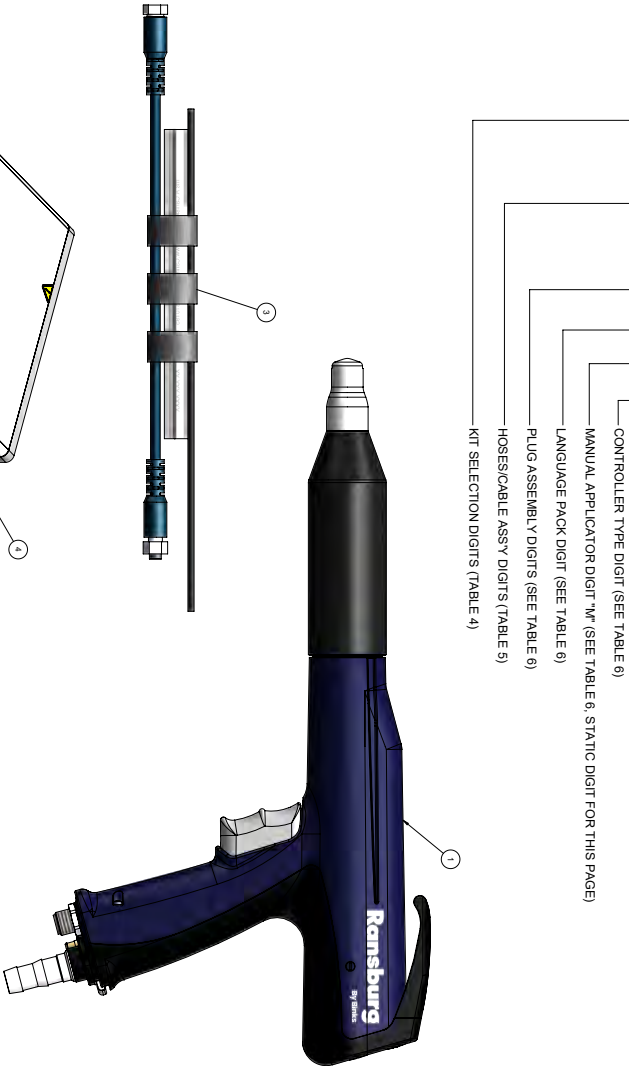
TABLE 5 - POWDER HOSE/CABLE ASSY.		
HOSE/CABLE DIGIT NUMBER	DESCRIPTION	QUANTITY
M01	461942-06	6M CABLE ONLY
M02	461942-10	10M CABLE ONLY
M03	461942-16	16M CABLE ONLY
M04	461942-20	20M CABLE ONLY
M05	TBD	6M CABLE/POWDER HOSE ONLY
M06	TBD	10M CABLE/POWDER HOSE ONLY
M07	TBD	16M CABLE/POWDER HOSE ONLY
M08	TBD	20M CABLE/POWDER HOSE ONLY
M09	610139-06	6M CABLE/POWDER HOSE/INLINE AIR BLINDE
M10	610139-10	10M CABLE/POWDER HOSE/INLINE AIR BLINDE
M11	610139-16	16M CABLE/POWDER HOSE/INLINE AIR BLINDE
M12	610139-20	20M CABLE/POWDER HOSE/INLINE AIR BLINDE

TABLE 6 - CONTROLLER/PLUG PACKAGE		
ITEM 4 PART NUMBER 581893-02 L.M.M.		
PLUG ASSEMBLY DIGIT ZZ	DESCRIPTION	
00	NONE	
01	PLUG ASSY. ELIMO ELITE CART (250V)	
02	PLUG ASSY. KALAMIN ELITE CART (120V)	
03	PLUG ASSY. ELIMO ELITE CART (120V)	
04	PLUG ASSY. CAL ELITE CART (250V)	
05	PLUG ASSY. JMK ELITE CART (250V)	
LANGUAGE PACK DIGIT YY	DESCRIPTION	
00	ENGLISH LANGUAGE PACK	
01	SPANISH LANGUAGE PACK	
02	FRENCH LANGUAGE PACK	
03	GERMAN LANGUAGE PACK	
04	USED WITH MANUAL GUN	
CONTROLLER DIGIT WW	DESCRIPTION	
00	BASIC	
01	DELUXE	

- NOTES:
- 1 LISTED BUT NOT SHOWN
 - 2 THIS CONFIGURATION TRAINING IS FOR CONNECTION TO MANUAL APPLICATORS 65710. ALL APPROVED ACCESSORIES OF THAT MODEL (SEE C045-1000-CD) MAY BE USED AND ACCEPTED WITH THIS CONFIGURATION.

MANUAL APPLICATOR CONVERSION KIT

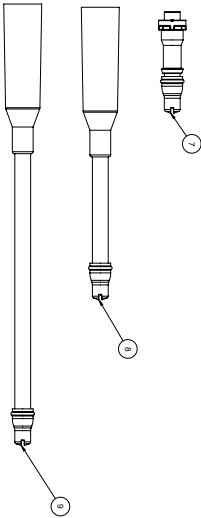
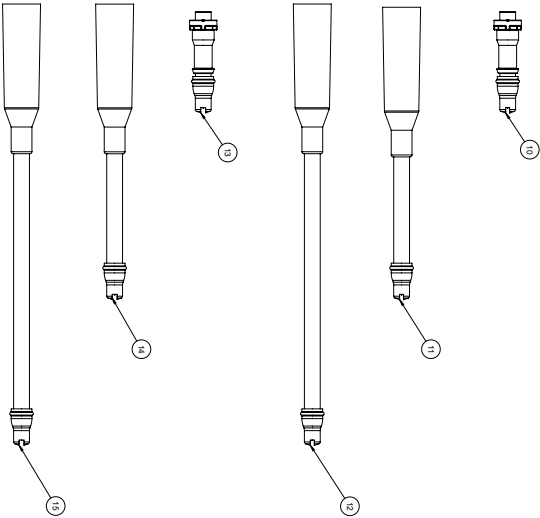
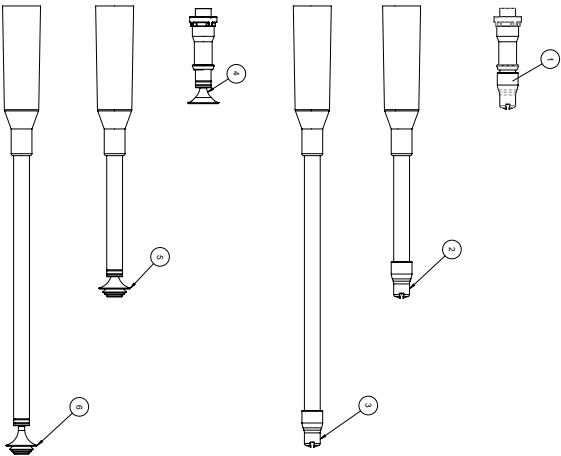
835091-AAA BBB - ZZ Y M W



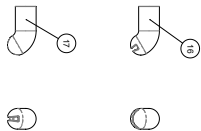
10.3 M5 ACCESSORIES

ITEM NUMBER	DESCRIPTION	PART NUMBER
1	FLAT SPRAY NOZZLE SET FI	61514
2	EXTENSION FLAT 150mm	61515
3	EXTENSION FLAT 300mm	61516
4	ROUND SPRAY NOZZLE SET FI	61518
5	ROUND SPRAY NOZZLE SET FI 150	61525
6	ROUND SPRAY NOZZLE SET FI 300	61526
7	3mm FLAT ET NOZZLE SET T	61026A.3
8	3mm FLAT ET EXTENSION 150mm	61026A.13
9	3mm FLAT ET EXTENSION 300mm	61026A.33
10	4mm FLAT ET NOZZLE SET T	61026A.4
11	4mm FLAT ET EXTENSION 150mm	61026A.14
12	5mm FLAT ET NOZZLE SET T	61026A.5
13	5mm FLAT ET EXTENSION 150mm	61026A.15
14	5mm FLAT ET EXTENSION 300mm	61026A.35
15	ROUNDER NOZZLE SET FI	61026A.15
16	ROUNDER NOZZLE SET FI 150mm	61026A.15
17	ROUNDER NOZZLE SET FI 300mm	61026A.35

APPROVED ACCESSORIES, SOLD SEPERATELY



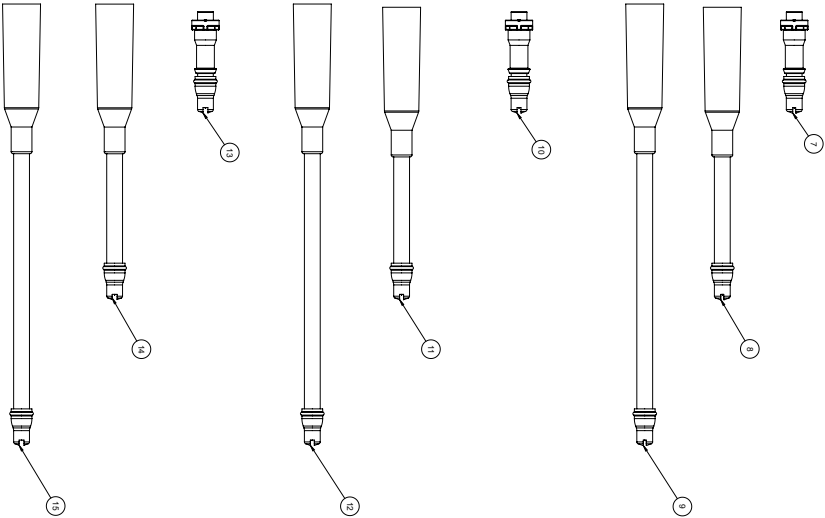
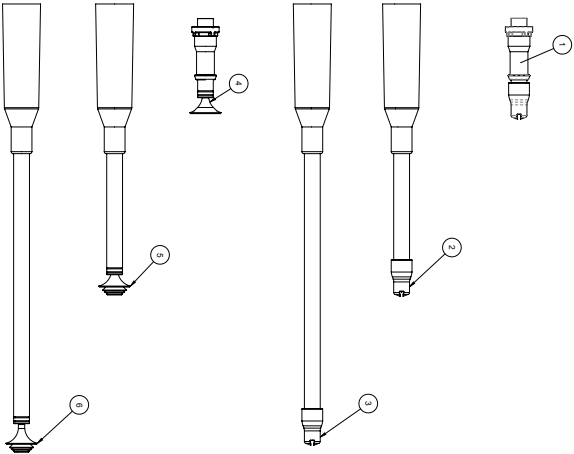
REV.	DATE	CHANGES	DATE	BY
01	2008	RELEASE TO MFG	12 JAN 08	PHD
02	2016	REVISION NAME CORRECTED	27 JUL 15	DAW



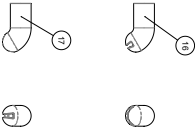
10.4 A5 ACCESSORIES

ITEM NUMBER	DESCRIPTION	PART NUMBER
1	FLAT SPRAY NOZZLE SET F1	615114
2	EXTENSION FLAT 150mm	615115
3	EXTENSION FLAT 300mm	615116
4	ROUND SPRAY NOZZLE SET R150	615225
5	ROUND SPRAY NOZZLE SET R300	615226
6	3mm FLAT ETI NOZZLE SET T	610206.3
7	3mm FLAT ETI NOZZLE SET T	610505.13
8	3mm FLAT ETI NOZZLE SET T	610505.33
9	4mm FLAT ETI NOZZLE SET T	610206.4
10	4mm FLAT ETI NOZZLE SET T	610505.14
11	5mm FLAT ETI NOZZLE SET T	610505.34
12	5mm FLAT ETI NOZZLE SET T	610505.15
13	5mm FLAT ETI NOZZLE SET T	610505.35
14	ROUNDER NOZZLE SET R150	610505.16
15	ROUNDER NOZZLE SET R300	610505.36
16	ROUNDER NOZZLE SET R450	610505.37
17	ROUNDER NOZZLE SET R600	610505.38

APPROVED ACCESSORIES, SOLD SEPERATELY



REV.	DATE	CHANGES	DATE	BY
01	20/06/25	RELEASE TO MFG	12 JAN 26	DAW
02	26/06/25	REVISION NAME CORRECTED	27 JUL 25	DAW



11 REVISION HISTORY

OVERVIEW OF CHANGES TO THE DOCUMENT		
DATE	DESCRIPTION	VERSION
12.09.2025	Acquisition of manufacturer MS by Binks Changed MS-specific designations Updated all images Layout update	R3

12 WARRANTY POLICY

This product is covered by Binks' materials and workmanship limited warranty.

The use of parts or accessories from sources other than Binks will void all warranties. Failure to follow reasonable maintenance guidance provided can invalidate the warranty.

For specific warranty information, please contact Binks.

For technical assistance or to locate an authorized distributor, contact one of our international sales and customer support locations listed below.

REGION	BINKS CONTACT
Americas	Tel: 1-800-992-4657
Europe, Africa, Middle East	Tel: +4401202571111
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Australia	Tel: +61085257555

WARRANTY PAGE



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