

Controller Unit (DTY-ZKCRU)*

Integrated on/off control of power supply and supply air!

* For use with DTY-ELK01 Series only. Cannot control other blow types.

- Using a controller unit enables integrated on/off control of power supply and supply air using an external signal.
- Controller settings can be configured for intermittent (5 Hz or 10 Hz) blowing of ionized air. Intermittent ionized air blowing increases particle removal.
- Cleaning timer to alert you to how much ionizer operation time is available. LED lamp and output alert you when operation time reaches 300 hours or 500 hours, which can be used as a guide for cleaning. For details, see page 9 .

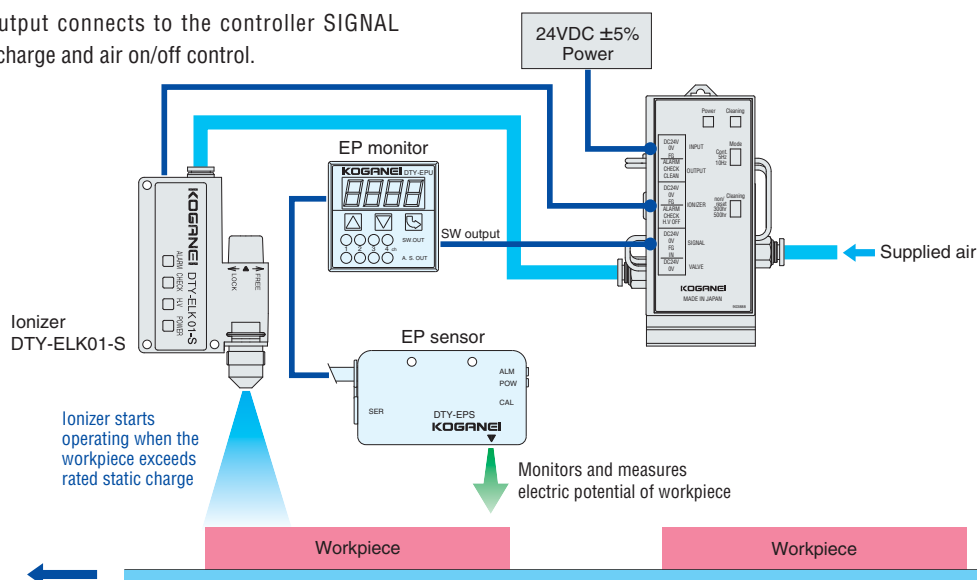
* Cleaning period depends on the operating environment.



Control unit usage example

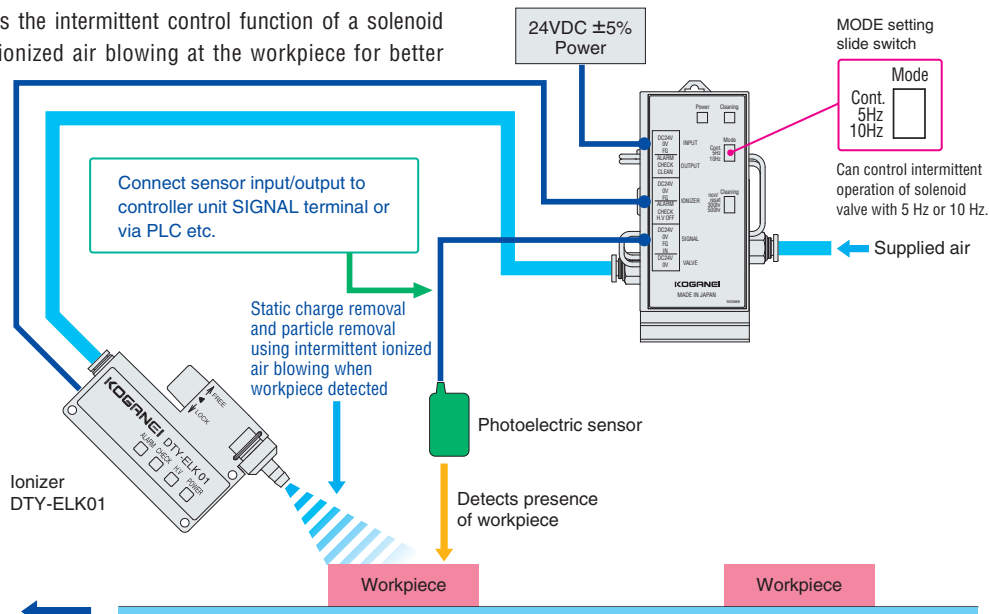
- Static electricity monitoring using an EP sensor and EP monitor, and ionizer control using a controller unit

EP monitor switch output connects to the controller SIGNAL terminal for ionizer discharge and air on/off control.



- Static charge removal and particle removal using intermittent ionized air blowing

The controller unit uses the intermittent control function of a solenoid valve for intermittent ionized air blowing at the workpiece for better particle removal.



Specifications

Controller (DTY-ELK01 series only)

Item		Model	DTY-ZKCR (Controller)	DTY-ZKCRU (Controller unit)
Power supply			24VDC $\pm 5\%$	
Consumption current ^{Note 1}		mA	50	230
Control input ^{Note 2}			No voltage input, internal drop voltage of 0.5V or less	
Output	ALARM		Ionizer output through (open drain 24VDC 50 mA MAX.)	
	CHECK			
	CLEAN		Open collector output 24VDC 50 mA MAX.	
Solenoid valve connection ^{Note 3}			24VDC (200 mA MAX.)	—
Settings	MODE (solenoid valve operation setting)		Cont. (continuous operation), 5 Hz (intermittent operation), 10 Hz (intermittent operation)	
	Cleaning ^{Note 4} (timer setting)		non/reset (not using or timer reset) 300 hr (ionizer operation time: 300 hours) 500 hr (ionizer operation time: 500 hours)	
Indicators	Power LED (red)		Lights while power is on	
	Cleaning LED (red)		Lights when cleaning timer time setting is reached.	
Piping diameter			—	$\phi 6$ quick fitting (IN, OUT)
Operating pressure range MPa [psi.]			—	0.05~0.5 [7~73]
Medium			—	Air (clean air, water vapor and oil removed)
Built-in Solenoid valve	Model		—	130E1-2-SR-4W DC24V (direct drive type, low grease specification, surge protected)
	Flow rate characteristics			Sonic conductance C: 0.96 dm ³ (s · bar), Effective area: 4.8 mm ² [Cv: 0.27]
	Port size			Rc 1/8
	Operating pressure range MPa [psi.]			0~0.9 [0~131] ^{Note 5}
	Maximum operating frequency Hz			10
	Current value mA			185
Mass g [oz.]			60 [2.12]	250 [8.82]
Mounting methods			DIN rail mounting	Bracket mounting
Operating environment			Indoors: 0 to 40°C [32 to 104°F], 35 to 65% RH (non-condensation)	

Notes 1: Ionizer and externally connected equipment not included.

2: Use a control input OFF time of 200 ms or greater.

3: Capacity of connectable solenoid valve. For the solenoid valve, use a direct drive valve. Use a valve with surge protection and one that uses little grease.

4: The ionizer cleaning period depends on the operating environment. Use the cleaning timer as a guideline.

5: Use within the ionizer operating pressure range.

Reference: The **DTY-ZKCRU** (controller unit) is a unit product of **DTY-AKCR** (controller) and solenoid valve. Depending on operating conditions, the life of the solenoid valve may differ from that of the ionizer.



1. When using a low particle generation type, note that particles may be generated from the solenoid valve.

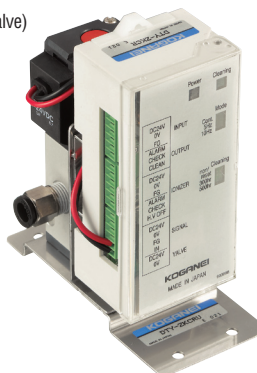
2. When performing intermittent operation, the desired intermittent air effect may not be obtainable if the piping distance from the solenoid valve to the ionizer is long.

Controller (only for DTY-ELK01 series)

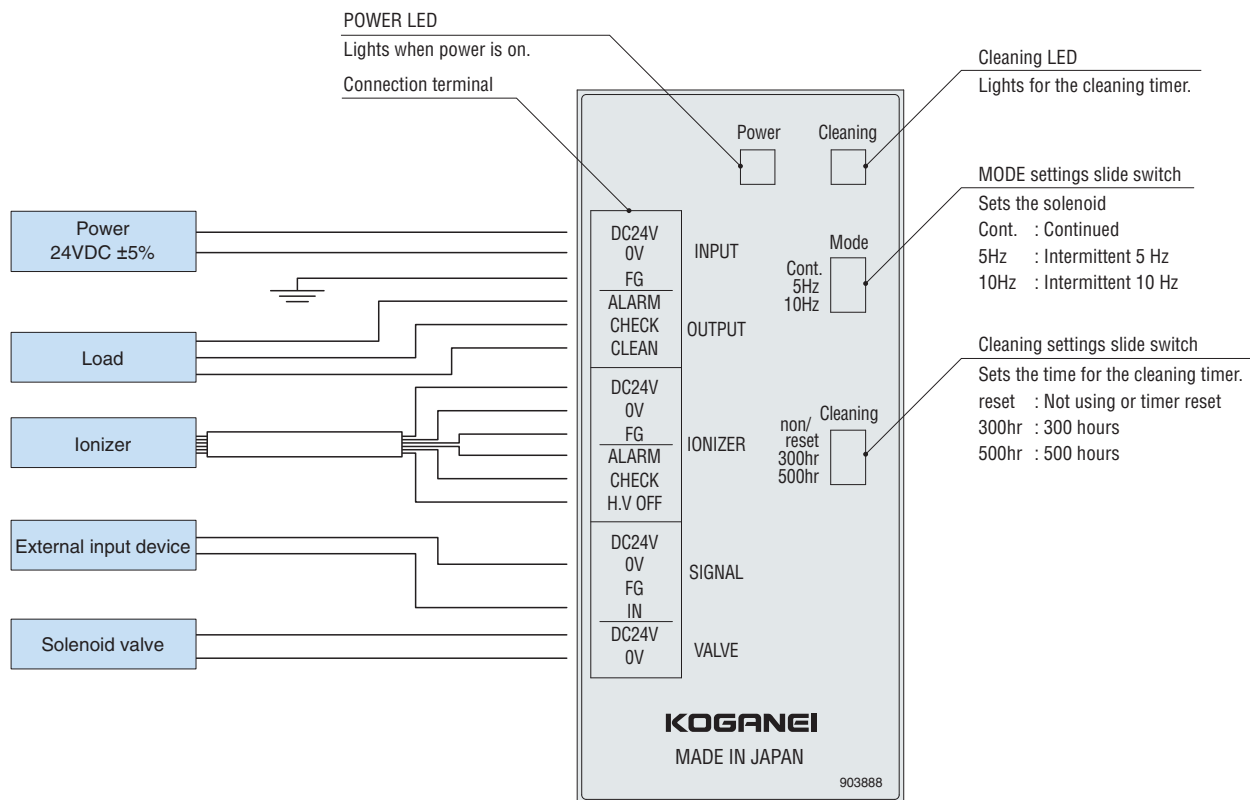
Controller (main unit only) DTY-ZKCR



Controller unit (with solenoid valve) DTY-ZKCRU



Controller connection configuration and functions



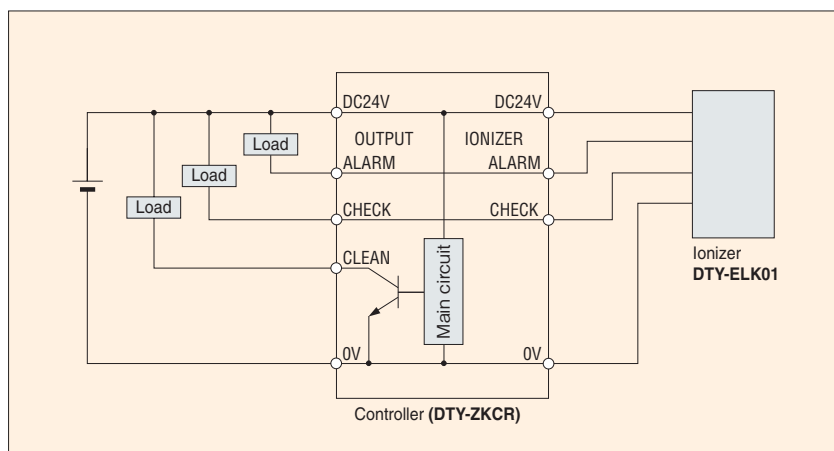
Note: Always be sure to connect the IONIZER H.V OFF terminal.

Reference: Recommended solenoid valve: **130E1-2-SR-4W DC24V** (direct drive type; low grease specifications; surge protected). Depending on operating conditions, the life of the solenoid valve may differ from that of the ionizer.

Connection terminal functions

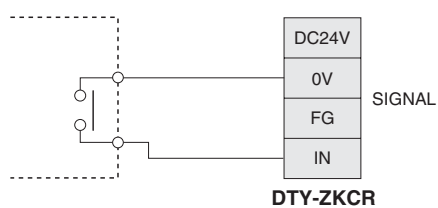
Terminal Name		Function
INPUT	DC24V	Inputs 24VDC ±5% power supply
	0V	
	FG	
OUTPUT	ALARM	Performs abnormality output from ionizer and check output signal.
	CHECK	
	CLEAN	
IONIZER	DC24V	Supplies power to the ionizer.
	0V	
	FG	For connection of ionizer ground.
	ALARM	For connection of the ionizer abnormality signal line.
	CHECK	For connection of the ionizer check signal line.
	H.V OFF	Controls ionizer discharge on/off.
SIGNAL	DC24V	For connection of switch, sensor, or other external input device. The ionizer and solenoid valve operate while a signal is being input from a device.
	0V	
	FG	
	IN	
VALVE	DC24V	Operates the solenoid valve.
	0V	

■ OUTPUT terminal circuit configuration

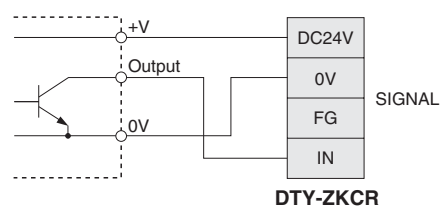


■ SIGNAL terminal external connection example

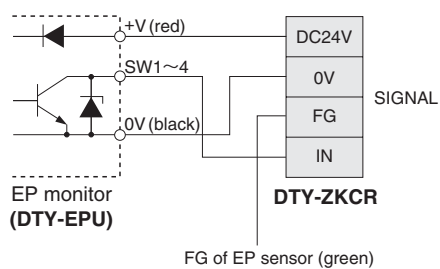
● Reed switch output type



● NPN open collector output type



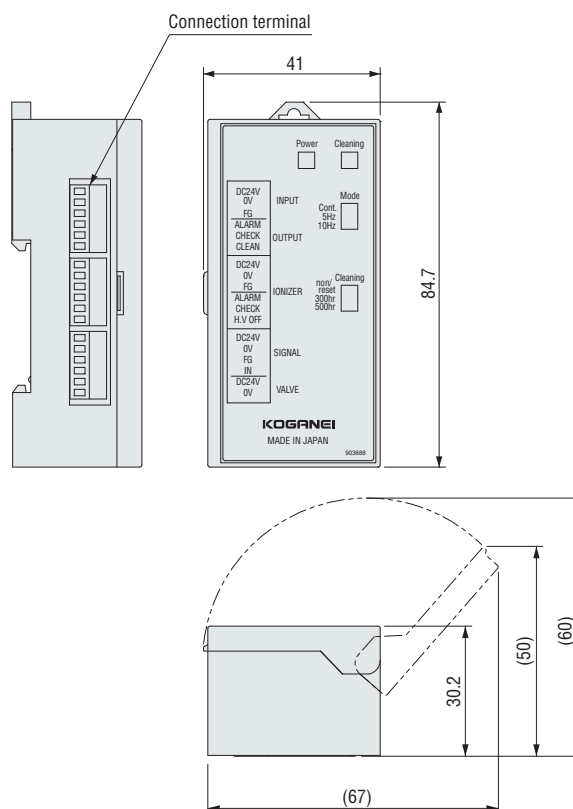
● For EP sensor + EP monitor



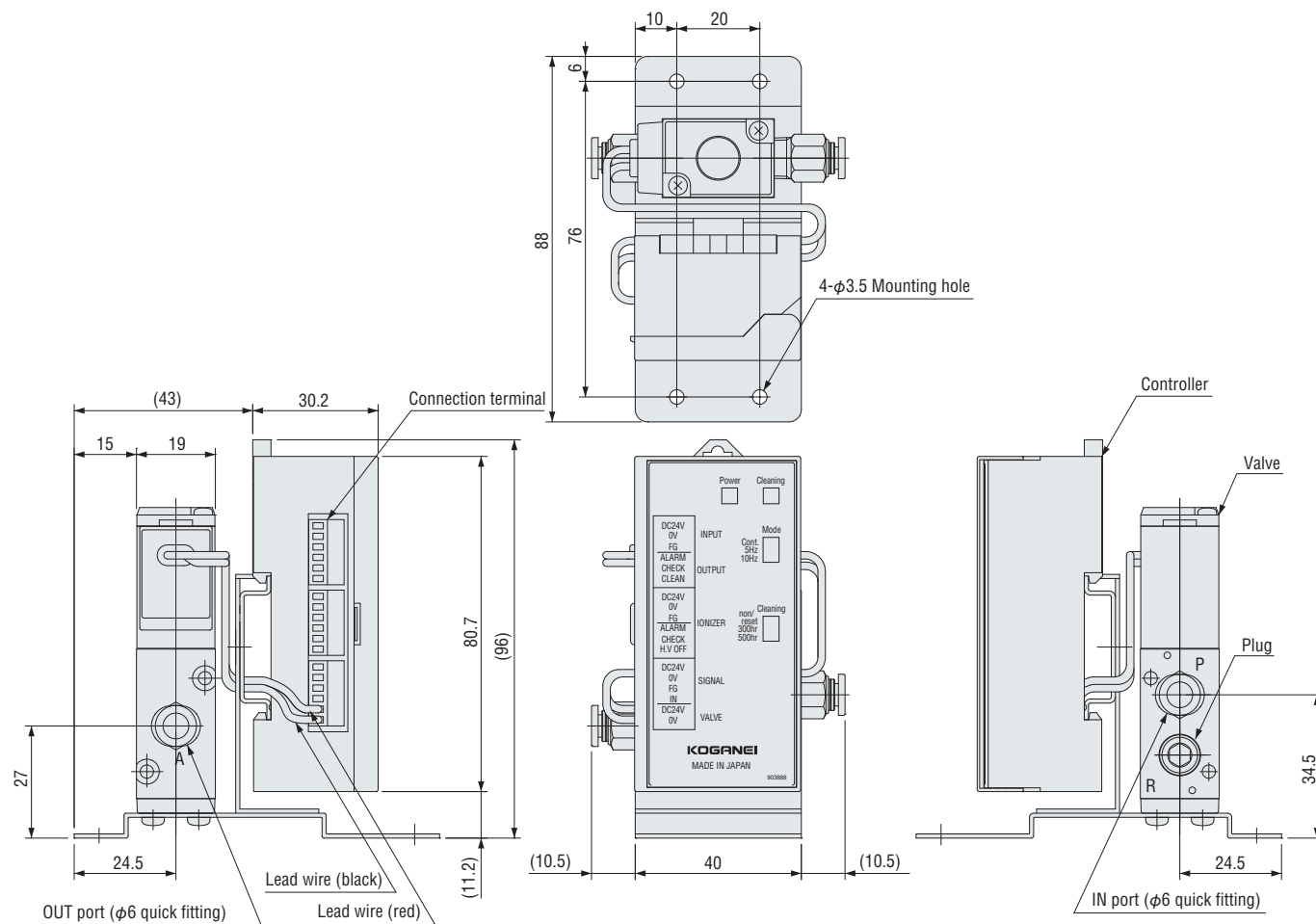
Blow Type DTY-ELK01 Series Common Options

Dimensions (mm)

● Controller (main unit only) DTY-ZKCR







● Controller unit (solenoid valve built-in) DTY-ZKCRU



Before selecting and using the products, please read all the Safety Precautions carefully to ensure proper product use. The Safety Precautions described below are to help you use the product safely and correctly, and to prevent injury or damage to you, other people, and assets. Be sure to follow both ISO4414 (Pneumatic fluid power - Recommendations for the application of equipment to transmission and control systems) and JIS B8370 (Pneumatic system regulations) safety regulations.

The directions are ranked according to degree of potential danger or damage: **DANGER!**, **WARNING!**, **CAUTION!**, and **ATTENTION!**

 DANGER	Indicates situations that can be clearly predicted as dangerous. Death or serious injury may result if the situation is not avoided. It could also result in damage or destruction of assets.
 WARNING	Indicates situations that, while not immediately dangerous, could become dangerous. Death or serious injury may result if the situation is not avoided. It could also result in damage or destruction of assets.
 CAUTION	Indicates situations that, while not immediately dangerous, could become dangerous. Failure to avoid the situation creates the risk of minor or mildly serious injury. It could also result in damage or destruction of assets.
 ATTENTION	While there is little chance of injury, this content refers to points that should be observed for appropriate use of the product.

■ This product was designed and manufactured as a part for use in general industrial machinery.

- In the selection and handling of the equipment, a system designer or other person with sufficient knowledge and experience should always read the Safety Precautions, catalog, instruction manual and other literature before commencing operation. Making mistakes in handling is dangerous.
- After reading the catalog, instruction manual, etc., always place them where they can be easily available for reference to users of this product.
- If transferring or lending the product to another person, always attach the catalog, instruction manual, etc., to the product where they are easily visible, to ensure that the new user can use the product safely and properly.
- The danger, warning and caution items listed under these "Safety Precautions" do not cover all possible cases. Read the catalog and instruction manual carefully, and always keep safety first.



DANGER

- Do not use the product for the purposes listed below:
 1. Medical equipment related to maintenance or management of human lives or bodies.
 2. Machines or equipment designed for the purpose of moving or transporting people.
 3. Critical safety components in mechanical devices.

This product has not been planned or designed for purposes that require high levels of safety. Using it in this way may result in loss of human life.
- Do not use the product in locations with or near dangerous substances such as flammable or ignitable substances. This product is not explosion-proof. It could ignite or burst into flames.
- When mounting the product and nozzles, always firmly support and secure them in place. Falling, dropping, or abnormal operation etc of the product, may result in injury.
- Persons who use a pacemaker, etc., should keep a distance of at least one meter away from the product. There is a possibility that the pacemaker will malfunction due to the magnetic field, etc.
- Never attempt inappropriate disassembly or assembly of the product relating to basic construction, or to its performance or functions. Doing so creates the risk of abnormal operation, injury, electric shock, fire, etc.
- Do not allow water to splash on the product. Water spraying on the product, washing it, or using it under water creates the risk of abnormal operation, leading to injury, electric shocks, fire, etc.
- Always turn off power before inspecting or cleaning the product, or performing maintenance. Failure to do so creates the risk of electric shock.
- Never attempt to modify the product in any way. Doing so creates the risk of abnormal operation, leading to injury, electric shocks, fire, etc.



WARNING

- Do not use the product in excess of its specification range. Such use could result in product breakdowns, function stops, or damage. It could also drastically reduce the product's operating life.
- Be sure to fully implement shielding measures whenever using the product in the locations described below. Failure to do so creates the risk of abnormal operation, damage to machinery, or personal injury.
 1. Locations subject to large electric currents or strong magnetic fields
 2. Locations that may be subject to exposure from radioactive emission.
- Use safety circuits or create system designs that prevent damage to machinery or injury to personnel when the machine is shut down due to an emergency stop or electrical power failure.

- Do not share or wire parallel to power or high voltage lines. Noise from these lines may cause the equipment to operate erratically.
- Before supplying electricity to the device and before starting operation, always conduct a safety check of the area of machine operation. Unintentional supply of electricity creates the risk of electric shock.
- Do not touch the discharge needle, terminals, or switches, while power is turned on. There is a possibility of electric shocks and abnormal operation.
- Do not allow the product to be thrown into fire. The product could explode and/or release toxic gases.
- Do not sit on the product, place your foot on it, or place other objects on it. Tripping over or dropping the product may result in injury, damage or breakage to the product resulting in abnormal, erratic, or runaway operation, etc.
- Before conducting any kind of product inspection, maintenance, or replacement, be sure to completely cut off the power supply.
- Before performing any kind of wiring work, be sure to turn off power. Failure to do so creates the risk of electric shock.
- Do not allow the power cord, lead wires, and other cords to become damaged. Allowing a cord to become cut, bent excessively, pulled, rolled up, placed under a heavy object, or squeezed between two objects creates the risk of current leaks or defective continuity that can lead to fire, electric shock, or abnormal operation.
- Do not connect or disconnect connectors while power is turned on. Also, never apply unnecessary force to connectors. Doing so creates the risk of personal injury, device damage, and electric shock due to abnormal machine operation.
- Always refer to the instruction manual and other documentation for information about proper product wiring and piping. Improper wiring and piping creates the risk of damage and abnormal operation.
- After completing wiring work, check to make sure that all connections are correct before turning on power.
- Correctly apply the rated voltage to the product. Applying the wrong voltage will make it impossible to obtain the specified function, and creates the risk of damage to and burnout of the product.
- Do not place the AC adapter cable, or the power or signal wires of the products on moving parts because there is a risk they may be severed.
- Should you ever notice smoke, strange odors, or noise being emitted, stop using the equipment. Continued use creates the risk of fire and electric shock.



CAUTION

- Do not use the product in locations subject to direct sunlight (ultraviolet rays), dust, salt, iron particles, or humidity, or in ambient

atmospheres that include organic solvents, phosphate ester type hydraulic oil, sulfur dioxide gas, chlorine gas, acids, etc. Doing so could lead to loss of function, sudden degradation of performance, and reduced service life.

- This product uses sensitive electronic components. When handling the product take care to avoid dropping it, allowing it to come into contact with other objects, or otherwise subjecting it to excessive impact. Even if the product appears undamaged, damage to internal components can cause abnormal operation.
- When installing the product, be sure to allow adequate work space around it. Failure to ensure adequate work space will make it more difficult to conduct daily inspections or maintenance, which could eventually lead to system shutdown or damage to the product.
- Always post an "operations in progress" sign for installations, adjustments, or other operations, to avoid unintentional supplying of electrical power, etc. Unintended power supply can cause electric shock and sudden operation, creating the risk of personal injury.



ATTENTION

- When considering the possibility of using this product in situations or environments not specifically noted in the catalog or instruction manual, or in applications where safety is an important requirement such as in an aircraft related facilities, combustion equipment, leisure equipment, safety equipment, and other places where human life or assets may be greatly affected, take adequate safety precautions such as allowing plenty of margin for ratings and performance, or fail-safe measures. Be sure to consult with us regarding such applications.
- Always check the instruction manual and other reference materials for product wiring and piping.
- When handling the product, wear protective gloves, safety glasses, safety shoes, etc. for protection.
- When the product can no longer be used, or is no longer necessary, dispose of it appropriately as industrial waste.
- Equipment may exhibit degraded performance and function over its operating life. Always conduct daily inspections of the equipment, and confirm that all requisite system functions are satisfied, to prevent accidents from happening.



Other

- When using this product in a system, use only genuine KOGANEI parts or equivalent (recommended) parts.
When conducting maintenance and repairs, always use genuine KOGANEI parts or equivalent parts (recommended parts).
Always observe the prescribed methods and procedures.

KOGANEI cannot be responsible if these items are not properly observed.

Blow Type Ionizer Safety Precautions



DANGER

- High voltage is applied to the discharge needle, creating the risk of electric shock. Never touch the discharge needle while power is turned on.



WARNING

- The tip of the discharge needle is a sharp point. Care is required when handling the needle. Improper handling of the discharge needle creates the risk of personal injury.
- Before conducting any kind maintenance, inspection, repair, connecting, disconnecting, or replacing parts, or similar operations on a product that uses pressurized air, always be sure first to completely cut off the air supply and confirm that residual pressure inside the product or in piping connected to the product is zero. In particular, be aware that residual air will still be in the air compressor or air storage tank.
- Blow type ionizers use air as a medium. Do not use any other type of medium.
- In the case of a blow type ionizer, always apply air first before applying power. Applying power while air is not being applied creates the risk of adversely affecting machinery and the environment.
- Check to make sure that the discharge needle unit is locked before applying air.



CAUTION

- An ionizer emits ozone into the atmosphere. Use of a single unit will cause ozone to reach the saturation point and will not increase past a fixed level. When using multiple units at the same time, provide ventilation if the odor of ozone becomes noticeable. Do not try to check for ozone odor by bringing your face close to the ionized air flow outlet. Doing so injure your nose and throat.
- Never try to use an ionizer for any other purpose beside static charge removal.
- Before performing piping work, thoroughly flush the inside of the pipes with compressed air. Metal chips, sealing tape, and rust generated while performing piping work create the risk of clogging and malfunction.
- For the medium, use clean air that does not include any oil or water.
- This product cannot be used if the medium or ambient atmosphere includes any of the following substances: Organic solvents, phosphate type hydraulic oil, sulfur dioxide gas, chlorine gas, or acids.
- Static charge removal may not be possible by ion blowing if there is a charged object in the vicinity of or touching another object. Pay attention to the environment surrounding the static charge removal target when setting up the ionizer.
- Static charge removal performance is reduced if the ionizer is not fully grounded.
- The life of the discharge needle depends on operating environment conditions. Periodic maintenance is required because performance is reduced under bad operating environment conditions (high humidity, etc.) or if the discharge needle is not cleaned.
- Note that inrush current occurs when power is turned on. When power on/off is controlled by PLC or other means, control using H.V. OFF.

Handling Instructions and Precautions



General Precautions

1. Do not apply extreme force to the exterior of the product.
2. Do not disassemble or modify the product.
3. Do not expose the product to ultraviolet rays, wind, or rain.

Mounting

1. Install the product on a flat surface. Twisting or bending during mounting creates the risk of abnormal operation.
2. For machine installation, take care to avoid water, oil, high temperatures, and high humidity. Be especially careful to avoid locations that are subject to condensation.

Wiring

1. When using a power supply with a commercially available switching regulator, be sure to connect a frame ground (F.G.).
2. When using devices that generate noise (switching regulator, inverter motor, etc.) in the vicinity of the installation, be sure to connect a frame ground (F.G.) to the devices.
3. After completing wiring work, check to make sure that all connections are correct.

Precautions During Use

1. Always turn off power before doing inspection, cleaning, or maintenance work.
2. Should any malfunction occur, be sure to contact KOGANEI for adjustment and repair.
3. Periodic maintenance is important to maintain performance. Perform periodic maintenance according to the instructions in the product's instruction manual.
4. Do not use the product in the moving section of a machine where there is vibration or shock.
5. Do not place the AC adapter cable, or the power or signal wires of the products on moving parts because there is a risk they may be severed.

Handling Instructions and Precautions

Precautions During Use

1. In the case of a blow type ionizer, always apply air first before applying power. Applying the power supply while air is not being applied will cause discharge, which raises the internal ozone density and creates the risk of adverse effect to the machine and environment.
2. Perform ionizer power on/off on the input power supply (+24VDC) side.
3. When using the **DTY-NZK-H□□** tube tip nozzle, connect the tube tip nozzle (included bracket) to ground. Failure to do so may prevent peak ionizer performance.
4. Nozzle tubes are consumables, so they required periodic replacement when they become soft or when they deteriorate.
5. Use only KOGANEI nozzles. Never attempt to modify nozzles. Doing so creates the risk of product malfunction, loss of function, or damage.
6. When bending a bender nozzle, hold the bender nozzle at its base. Failure to do so can result in damage to the pipe and the unit connector portion.

Output of abnormality output contact point

1. The abnormality output circuit of this product will normally activate about one second after power is turned on. Sufficient care should be taken to design an error detection circuit at the time of the unit installation on other equipment, etc.
2. Abnormality output is performed if power to the ionizer unit is turned off and immediately turned back on again. After turning power off, wait for at least one second before turning power back on again.
3. Abnormality output may be performed when power to the ionizer unit is turned off.
Sufficient care should be taken to design error detection circuitry that does not detect ionizer error output for one second after power to the ionizer unit is turned off.

Notes 1: The same also applies when the ionizer is turned on and off by H.V OFF.

2: Neither of the cases above causes any problems with ionizer performance.

Installing a nozzle unit for a bender nozzle

To install a nozzle unit on the tip of the **DTY-NZK-□00D**, first remove the bender nozzle tip component and then install the nozzle unit. Securely screw the nozzle unit onto the bender nozzle.

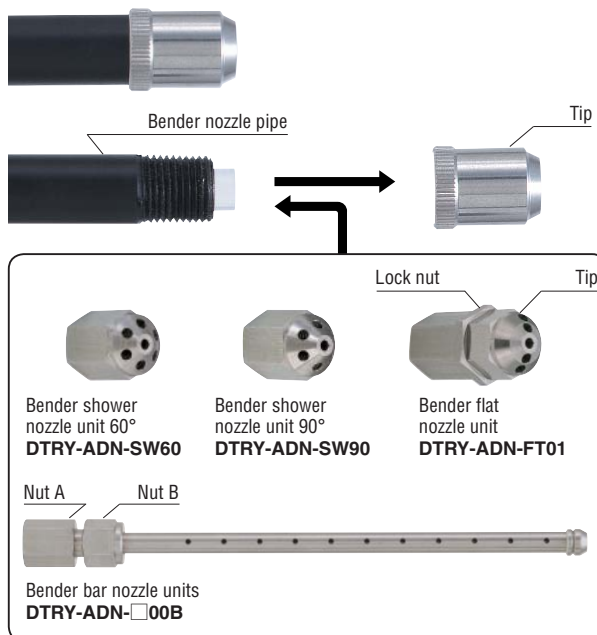
For direction adjustment of the ionized air flow outlets of the **DTRY-ADN-□00B** bender bar nozzle unit, loosen nut B. At this time, secure the bender nozzle with nut A in order to prevent force from being applied to the bender nozzle.

For direction adjustment of the ionized air flow outlets of the **DTRY-ADN-FT01** bender flat nozzle unit, perform adjustment at the tip and secure with the lock nut.



1. Before installing or replacing a nozzle unit for a nozzle or bender nozzle, be sure to turn power and air off.
2. The recommended tightening torque of the nozzle unit for bender nozzles is 30 N-cm.
3. The recommended tightening torque for nut B and the lock nut is 70 to 90 N-cm.

Bender nozzles



Minimum bending radius of bender nozzles and tubes

mm	
Model	Minimum bending radius
DTY-NZK□00D/DTY-NZK□00DL	40
DTRY-ADN-U	15
DTRY-ADN-F	50
DTRY-ADN-S	10
DTY-ZKTL	10



Static charge removal performance may be reduced during use at the minimum bending radius.

CAUTION

- In the case of a blow type ionizer, always supply air first before applying power. Applying power while air is not being supplied creates the risk of adversely affecting machinery and the environment.
- For the medium, use clean air that does not contain any oil.

Warranty and General Disclaimer

1. Warranty Period

The warranty period for KOGANEI products is 180 days from the date of delivery.

2. Scope of Warranty and General Disclaimer

- (1) The KOGANEI product warranty covers individual products. When a product purchased from KOGANEI or from an authorized KOGANEI distributor malfunctions during the warranty period in a way that is attributable to KOGANEI responsibility, KOGANEI will repair or replace the product free of charge. Even if a product is still within the warranty period, its durability is determined by its operation cycles and other factors. Contact your nearest KOGANEI sales office or the KOGANEI overseas department for details.
- (2) KOGANEI shall not be held responsible for any losses or for any damage to other machinery caused by breakdown, loss of function, or loss of performance of KOGANEI products.
- (3) KOGANEI shall not be held responsible for any losses due to use or storage of the product in a way that is outside of the product specifications prescribed in KOGANEI catalogs and the instruction manual, and/or due to actions that violate the mounting, installation, adjustment, maintenance and other safety precautions.
- (4) KOGANEI shall not be held responsible for any losses caused by breakdown of the product due to factors outside the responsibility of KOGANEI, including but not limited to fire, natural disaster, the actions of third parties, and intentional actions or errors by you.

Limited Warranty

KOGANEI CORP. warrants its products to be free from defects in material and workmanship subject to the following provisions.

Warranty Period The warranty period is 180 days from the date of delivery.

Koganei Responsibility If a defect in material or workmanship is found during the warranty period, KOGANEI CORP. will replace any part proved defective under normal use free of charge and will provide the service necessary to replace such a part.

Limitations ● This warranty is in lieu of all other warranties, expressed or implied, and is limited to the original cost of the product and shall not include any transportation fee, the cost of installation or any liability for direct, indirect or consequential damage or delay resulting from the defects.

● KOGANEI CORP. shall in no way be liable or responsible for injuries or damage to persons or property arising out of the use or operation of the manufacturer's product.

● This warranty shall be void if the engineered safety devices are removed, made inoperative or not periodically checked for proper functioning.

● Any operation beyond the rated capacity, any improper use or application, or any improper installation of the product, or any substitution upon it with parts not furnished or approved by KOGANEI CORP., shall void this warranty.

● This warranty covers only such items supplied by KOGANEI CORP. The products of other manufacturers are covered only by such warranties made by those original manufacturers, even though such items may have been included as the components.

The specifications are subject to change without notice.

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