





SA-24 AUTOMATIC SYSTEM CONTROL



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GENERAL PRECAUTIONS

	ATTENTION Allow only qualified personnel familiar with adjustable frequency AC drives, and associated machinery to plan or implement the installation, start-up and subsequent maintenance of the system. Failure to comply can result in personal injury and/or equipment damage.
	ATTENTION To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before performing any work on the electrical controls, switches and/or drives if applicable.
	ATTENTION Incorrectly applied or installed electrical controls, switches and/or drives can result in component damage or a reduction in product life. Wiring or application errors, such as, undersizing the motor, incorrect or inadequate AC supply, or excessive ambient temperatures can result in malfunction of the system.
	ATTENTION The electrical controls, switches and/or drives may contain ESD (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions may be required when installing, testing, servicing or repairing this assembly. Component damage can result if ESD control procedures are not followed.

IMPORTANT USER INFORMATION

Read this document in entirety before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Plymovent be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.



The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Plymovent cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Plymovent with respect to use of information, circuits, equipment, or software that may be described in this manual. Throughout this manual, when necessary, notes may be used to make you aware of safety considerations.

The operation of exhaust extraction systems can be affected by various factors including but not limited to proper design of the



system, operating procedures, service and maintenance. Fume exhaust exposure levels should be checked upon installation and periodically thereafter to ensure that they fall within applicable regulations and exposure limit values.

Plymovent systems are made code compliant, please ensure the system is properly designed, operated, serviced and maintained.

	WARNING! Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury, death, property damage, or economic loss.
	ATTENTION Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

	SHOCK HAZARD Labels may be on outside or inside of the equipment, for example control box, to alert people that dangerous voltage may be present.
	ARC FLASH HAZARD Labels may be on outside or inside of the equipment, for example control box, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protection Equipment (PPE). Follow ALL regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.

EN - ORIGINAL INSTRUCTION

All rights reserved. The information given in this document has been collected for the general convenience of our clients. It has been based on general data pertaining to construction material properties and working methods known to us at the time of issue of the document and is therefore subject at anytime to change or amendment, and the right to change or amend is hereby expressly reserved. Changes may be made with or without notification, it is the users responsibility to ensure they have attained the most recent copy of this document for their files. The instructions in this publication only serve as a guideline for installation, use, maintenance and repair of the product mentioned on the cover page of this document. This publication is to be used for the standard model of the product of the type given on the cover page. Thus the manufacturer cannot be held responsible for any damage resulting from the application of this publication to the version actually delivered to you. This publication has been written with great care. However, the manufacturer cannot be held responsible, either for any errors occurring in this publication or for their consequences.






PREFACE

Using this Manual

This manual is intended to be used as a work of reference for professional, well trained and authorized users to be able to safely install, use, maintain and repair the product mentioned on the cover of this document. This user manual should always be kept with the product, as well as a duplicate copy be kept by the end user or maintenance/service department after installation.

Pictograms and Symbols

The following pictograms and symbols are used in this manual:

	ATTENTION A remark with additional information for the user. A remark brings possible problems to the user's attention.
	CAUTION! Procedures, if not carried out with the necessary caution, could damage the product, the workshop or the environment.
	WARNING! Procedures which, if not carried out with the necessary caution, may damage the product and/or cause serious personal injury.
	CAUTION! Risk of electric shock.
	WARNING! Fire hazard! Important warning to prevent fire.

Text Indicators

Listings indicated by "-" (hyphen) concern enumerations.
Listings indicated by "•" (bullet point) describe steps to perform.

Service and Technical Support

For information about specific adjustments, maintenance or repair jobs which are not dealt with in this manual, please contact the supplier of the product. They will always be willing to help you. Make sure you have the following specifications at hand:

- product name
- serial number

You can find this data on the identification plate.

1 INTRODUCTION

1.1 Identification of The Product

The identification plate contains, among other things, the following data:

- product name
- serial number
- supply voltage and frequency
- power consumption

1.2 General Description

The SA-24 control box is an energy saving control unit designed to be used for controlling exhaust fans in vehicle exhaust systems, with or without a particle filtration system. Together with optional activation devices such as a pressure switch, wireless control, or micro switch, this energy saving controller

makes a fully automatic system for the control of the vehicle exhaust fan. The controller only functions in an automatic mode. Depending on the configuration of a system, several options for switches and remote start functions are available. The two most common switches used, are the MSR-24/2 or BRC-MS micro switch mounted on an exhaust hose reel or balancer to start and stop the fan as the hose is pulled down for use or retracted for storage.

1.3 Options and Accessories

The MSR-24/2 is a single throw double pole micro switch that is installed on the exhaust hose reel. When the hose is lowered the MSR-24/2 will activate the SA-24 and turn the fan on. Auxiliary contact can be used to control an automatic damper.

The BRC-MS is a single throw double pole micro switch that attaches to the BRC-450 spring balancer on fixed and boom extractors. When the hose is pulled down to connect to the vehicle, the BRC-MS will activate the SA-24 and turn the fan on. Auxiliary contact can be used to control an automatic damper.

1.4 Product Combinations

The SA-24 control box is designed in conjunction with Plymovent vehicle exhaust extraction system components including Plymovent exhaust fans, spring and motorized hose reels, fixed exhaust extractors and booms specifically for vehicle exhaust applications.

1.5 Technical Specifications

L x W x H	15.75" x 6" x 11.75" (400mm x 152mm x 298mm)
Mounting Hole Diameter	.4" (10mm) diameter holes
Mounting Hole Location	14.15" x 10.15" (359mm x 258mm) on centers
Weight	25 lbs (11.34 kg)
Box Rating	NEMA 12
Compliant With	CE, NFPA, cUL*
Automation	Automation
*For the most up-to-date UL information, including Plymovent, please visit the online certifications directory at www.ul.com .	



Refer to the available product data sheet for detailed product specifications.

1.6 Ambient Conditions

Operating temperature:	
- min.	- 41°F (5°C)
- nom.	- 68°F (20°C)
- max.	- 104°F (40°C)
Storage conditions	- 41-104°F (5-40°C) - relative humidity max. 80%
Suitable for outdoor use	no

1.7 Transport of The Unit

The SA-24 control box is delivered as self-contained exhaust system controller with automatic start function.

The manufacturer cannot be held liable for any damage to the unit due to shipping or mishandling. Always handle the unit and the accompanying options and/or accessories, if any, with care.

2 PRODUCT DESCRIPTION

2.1 Operation

The controller is set for automatic control of the fan from remotely located switch(s). Depending on the exhaust extraction system, different switches are available for starting the system. Mainly two types of switches will be used:

(1) The MSR-24/2 micro switch is installed on the hose reel to detect when the hose is being lowered to connect to a vehicle. The MSR-24/2 will activate the SA-24 and turn the fan on. The fan will automatically turn off when the hose is retracted or raised, the micro switch opens and the control box turns off the fan.

(2) The BRC-MS micro switch that attaches to the BRC-450 spring balancer on fixed and boom extractors. When the hose is pulled down to connect to the vehicle the BRC-MS will activate the SA-24 and turn the fan on. The fan will automatically turn off when the hose is retracted or raised. The micro switch opens and the control box turns off the fan.

The control box is designed to start a fan via remotely located switch(s). The activation switch can be one of the two (2) listed above, or any other type of maintained switch.

2.1.1 Automatic Mode

This mode of operation allows for automatic starting of the exhaust fan using one of the optional micro switches. When the exhaust hose is lowered or pulled down, the micro switch closes. This completes the circuit to the control box causing the fan to turn on. When the hose is retracted or raised the micro switch opens and the control box turns off the fan.

2.1.2 MSR-24/2

Optional MSR-24/2 is a single throw double pole micro switch that is installed on the exhaust hose reel. When the hose is lowered the MSR-24/2 will activate the SA-24 and turn the fan on. Auxiliary contact can be used to control an automatic damper.

2.1.3 BRC-MS

Optional BRC-MS is a single throw double pole micro switch that attaches to the BRC-450 spring balancer on fixed and boom extractors. When the hose is pulled down to connect to the vehicle, the BRC-MS will activate the SA-24 and turn the fan on. Auxiliary contact can be used to control an automatic damper.

3 SAFETY

General

The manufacturer does not accept any liability for damage to the product or personal injury caused by ignoring the safety instructions in this manual, or by negligence during installation, use, maintenance, and repair of the product mentioned on the cover of this document and any corresponding accessories. Specific working conditions or use of accessories may require additional safety instructions. Immediately contact your supplier if you detect a potential danger when using the product.

The user of the product is always fully responsible for observing local safety instructions and regulations.

User Manual

- Everyone working on or with the product must be familiar with the contents of this manual and must strictly observe the instructions therein. Management should instruct the personnel in accordance with the manual and observe all instructions and directions given.
- Never change the order of the steps to perform.
- This user manual should always be kept with the product, as well as a duplicate copy be kept by the end user or maintenance/service department after installation.
- The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Plymovent cannot assume responsibility or liability for actual use based on the examples and diagrams.
- No patent liability is assumed by Plymovent with respect to use of information, circuits, or equipment described in this manual.
- Reproduction of the contents of this manual, in whole or in part, without prior written permission of Plymovent is prohibited.

Pictograms and Instructions On The Product (if present)

- The pictograms, warning labels and instructions attached to the product are part of the safety features. They must not be covered or removed and must be present and legible during the entire life of the product.
- If pictogram, warning labels, or instructions on the product become damaged, missing or illegible, immediately discontinue use of the unit and replace or repair damaged or illegible pictogram, warnings and instructions.
- Contact your local authorized service technician for support.

Users

The use of this product is exclusively reserved to authorized, trained and qualified users. Temporary personnel and personnel in training should only use the product under supervision and responsibility of skilled technicians.

Intended Use¹

The product has been designed as a control box to operate a Plymovent exhaust extraction fan. Using the product for other purposes is considered contrary to its intended use. The manufacturer accepts no liability for any damages or injury resulting from such use. The product has been built in accordance with state-of-the-art standards and recognized safety regulations. Only use this product when in accordance with its intended use and the instructions explained in the user manual.

Technical Specifications

The specifications given in this manual must not be altered from the information given here within. This information is subject to change at any time with or without notice.

Modifications

Modification of (parts of) the product is not allowed, except the bottom plate, which is required to be used as entrance point for external cabling.

Installation

- The installation of this product is exclusively reserved to authorized, well-trained and qualified electricians.



¹ "Intended use" as explained in EN-ISO 12100 is the use for which the technical product is suited as specified by the manufacturer, inclusive of manufacturers directions in the sales brochure. In case of doubt, it is the use which can be deduced from the construction, the model and the function of the technical product which is considered normal use. Operating the machine within the limits of its intended use also involves observing the instructions in the user manual.

- All installations must meet any and all applicable local laws, regulations, standards and requirements.
- It is the responsibility of the installing party to ensure that all codes are met during the installation of this control system. Any inspections required are the sole responsibility of the installing party.
- Inspect the product and check it for damage.
- Verify the functioning of the safety features.
- Never install the product in front of entrances and exits which must be used for emergency services.
- Make sure that the workshop, in the vicinity of the product, contains sufficient approved fire extinguishers.
- It is recommended that the control box be mounted at approximately 6 feet (1.8m) above finished floor level to facilitate operator use and service if necessary.




Use

- Check the working environment. Do not allow unauthorized persons to enter the working environment.
- Protect the product against water and humidity.
- Stay alert and keep attention to your work. Do not use the product when you are under the influence of drugs, alcohol, or medicine.
- Make sure the room is always sufficiently ventilated; this applies especially to confined spaces.

Service, Maintenance and Repairs

	WARNING! Maintenance should only be performed by authorized, qualified and trained persons (skilled) using appropriate work practices.
	WARNING! Electrocution hazard Disconnect power supply before servicing. Failure to do so could result in serious personal injury or death.

4 INSTALLATION

	WARNING! Do not attempt installation of this unit unless you are familiar with the necessary tools, equipment, utility connections and potential hazards. Installation should be performed only by a qualified service provider. Failure to do so could result in reduced performance of the unit, serious personal injury or death.
	WARNING! Fire hazard Never install the control box in areas with flammable gases.
	ATTENTION The SA-24 control box is delivered without cables for external field wiring. All interconnect cables/wire size(s) used shall be supplied by others and comply with UL, NEC and all other national and local standards codes. The conduit fittings used for inserting the cable into the SA-24 control box should be placed in the bottom of the casing.




4.1 Unpacking

Check that the product is complete. The package should contain:

- SA-24 control box
- Door key

4.2 Electric Connection

Connect the SA-24 in accordance with the separately supplied electrical diagram.

	CAUTION! Electric connection to be executed in accordance with local requirements. Ensure compliance with the EMC regulatory arrangements.
	WARNING! Make sure the machine is suitable for connection to the building electric supply. Information about the connection voltage and frequency can be found on the identification plate.
	ATTENTION The thermal relay should be set according to the FLA (full load amps) listed on the identification plate on the motor.

4.3 Primary Wiring Procedure

4.3.1 Terminal Block 1

Is located in the lower left-hand corner of the SA-24 control box and consists of incoming power electrical terminal blocks L1, L2, L3 (it is important to note on single phase boxes, L3 will not be installed). Outgoing power to the fan motor via the overload output locations T1, T2, T3 (On single phase control boxes the T3 terminal will be occupied by a wire looping "back through" the contactor. This is necessary for proper operation and should not be altered). Ground should be landed on the terminal strip at the green and yellow terminal block. Low voltage control wiring terminal blocks (0, 24V and 1 through 8) and electrical overload fuses for protection for both primary (F1, F2) and secondary (F3) - reference Figure 1.

NOTE: Primary line voltage must not be greater or less than 8% of rated voltage listed on voltage tap. For example, Tap 120 volt (110 – 130 voltage range is acceptable) for excessively low line voltage, a buck boost transformer maybe required. (Supplied by others).

4.3.2 Primary Voltage Wiring

On the right side of the terminal block is the first terminal block marked GND (green ground). Here you will connect your ground wire (properly sized per NEC). In the second terminal block marked L1, you will connect your first power wire. In the third terminal block marked L2, you will connect your second power wire. For the fourth terminal block (when applicable), marked L3, you will connect your third power wire - reference Figure 1.

NOTE: The line supply voltage from your building, which will supply your motor, shall be connected directly to L1, L2 for single phase and L1, L2, and L3 for 3-phase. Re-check that rated voltage corresponds with supply voltage to avoid damage to electrical components or control wiring.

Table 2A on page 12 and Table 2B on page 13 show the fan component sizing charts.

Please refer to local codes and requirements. These will take precedence over the supplier wiring chart at the back of this manual.

4.3.3 Field Power Wiring of Control Box, Safety Disconnect and Fan Motor

The primary wiring of the electrical system must be rated for the maximum amps and HP rating of the fan motor load as well as the wiring voltage drop, which is calculated for the distance, you are running. See Plymovent Wiring Chart in the back of this manual as a guide for wiring. It is critical to always follow local code requirements for selecting wire in instances where they differ from Plymovent published recommendations.

NOTE: Field wiring, power supply panel and electrical safety disconnect are provided by others. Plymovent assumes no liability for any electrical installation and all national and local codes and standards should be followed.

4.4 Primary Wiring Procedures (Control Wiring)

4.4.1 Control Voltage Wiring

The terminal blocks 1 through 4 are used for low voltage control wiring of optional wireless control system, remote mounted activation devices for starting functions.

MSR-24/2

Optional MSR-24/2 is a single throw double pole micro switch that is installed on the exhaust hose reel. When the hose is lowered the MSR-24/2 will activate the SA-24 and turn the fan on. Auxiliary contact can be used to control an automatic damper.

BRC-MS

Optional BRC-MS is a single throw double pole micro switch that attaches to the BRC-450 spring balancer on fixed and boom extractors. When the hose is pulled down to connect to the vehicle, the BRC-MS will activate the SA-24 and turn the fan on. Auxiliary contact can be used to control an automatic damper.

A maintained manual switch can also be placed in parallel in this circuit for remote starting of the system.

NOTE: Control wires must be a minimum of 16 AWG/1.29 mm². Smaller wire sizing will result in improper system operation.

4.5 Transformer Wiring Procedure

4.5.1 Multi-tap Control Transformer

Designed by Plymovent to allow the field electrician the ability to select the primary voltage of his/her choice. This voltage selection ranges from 120 volt through 600 volt VAC. The transformer has been designed to operate in both 50 and 60 Hz environments.

NOTE: Primary line voltage must not be greater or less than 8% of rated voltage listed on voltage tap. For example, Tap 120 volt (110 – 130 voltage variant acceptable) for low line voltage, a buck boost transformer maybe required (supplied by others).

4.5.2 Primary Voltage Connection

On the top right side of transformer you will find a terminal block with 8 points of connection. Common black wire is connected to the top terminal block (black to yellow wire) and will always remain in this position regardless of the voltage adjustment that you will be making. The voltage adjusting gray wire is preset for

the voltage ordered. You may be required to reposition the voltage adjusting wire to the line supply voltage present at your installation/facility. For example, adjusting to 120 volt line voltage, move the voltage adjusting wire to wiretap second from the top of terminal block (black to white). View yellow label for correct wiretap color for each available voltage - reference Figure 1.

NOTE: Improper wiring will result in damage of other electrical components. Re-check that rated voltage corresponds with supply voltage to avoid damage to electrical components.

Always ensure power is off and all required procedures for facility (such as lock out tag out) are properly followed before making any adjustments to the control system.



WARNING!

Procedures which, if not carried out with the necessary caution, may damage the product and/or cause serious personal injury.

4.5.3 Secondary Voltage Connection

A 24VAC power supply is available using terminals labeled 0 and 24. This can be used to power an optional wireless control system or automatic dampers.

NOTE: The secondary voltage connections are preset from the factory, and shall never be changed.

4.5.4 Electrical Wiring

All electrical wiring which includes primary, secondary and control wiring must be done by a certified/licensed electrician and in accordance with the NEC.

5 MAINTENANCE

The SA-24 requires no specific maintenance.

6 TROUBLESHOOTING

If the SA-24 does not function correctly, please contact your local authorized dealer/technician.

7 SPARE PARTS

Please refer to Table 1 on page 9 to view the spare parts available for the SA-24 control box.

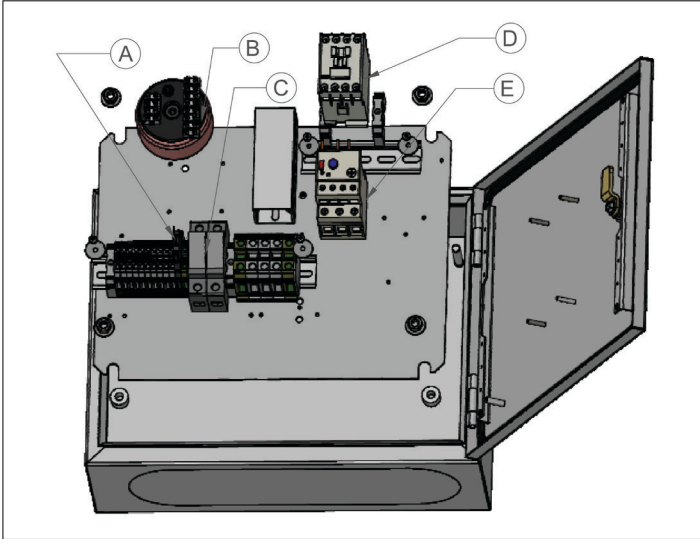


Fig. 7.1 Exploded view

- A - F3 Fuse
- B - Transformer
- C - F1/F2 Fuse
- D - Contactor
- E - Overload Relay

8 ELECTRICAL DIAGRAM

Please refer to Figures 8.1-8.3 (below) and Figure 1 on page 11 to view the electrical diagrams for the SA-24.

Table 2A on page 12 and Table 2B on page 13 show the Fan Component Sizing Charts for three and single phase.

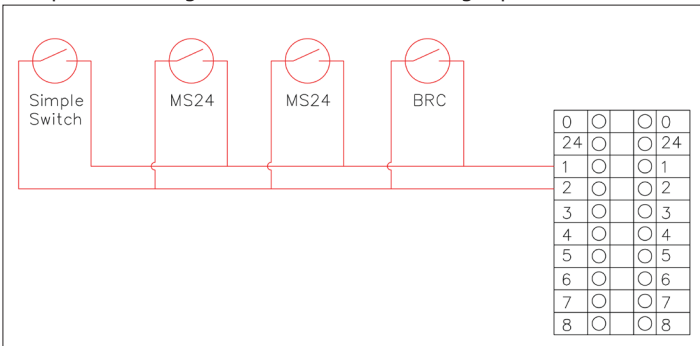


Fig. 8.1 Switch Detail

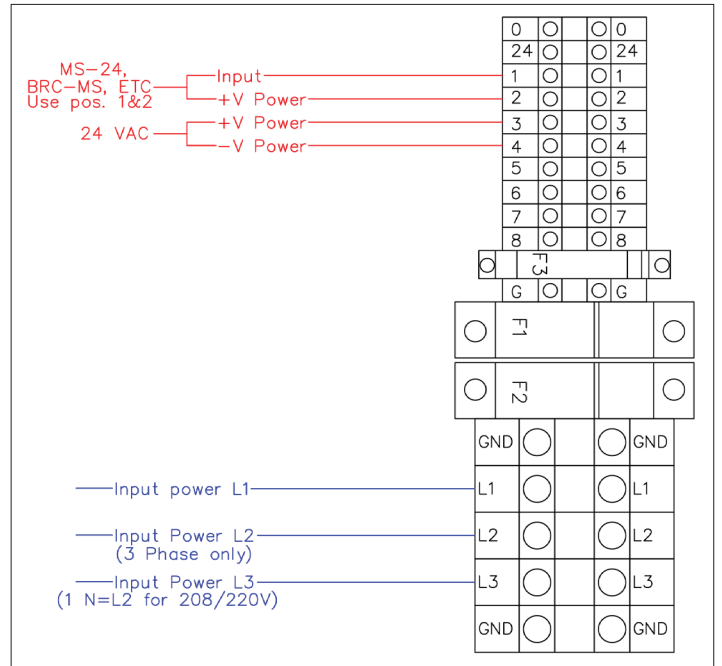


Fig. 8.2 Terminal Detail

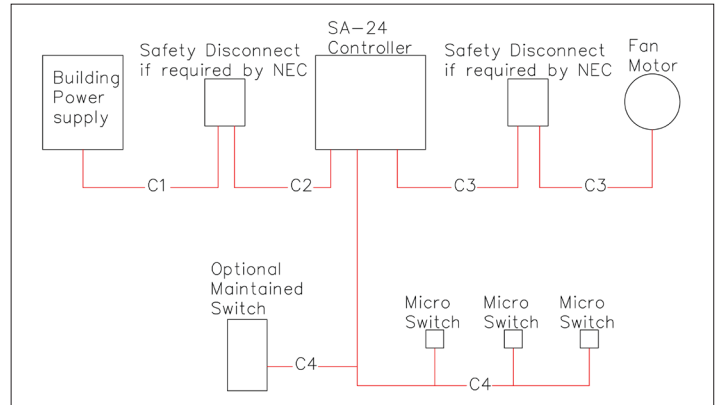


Fig. 8.3 System Detail

9 DISPOSAL

After life of the product, dispose of it in accordance with state or local regulations.

Table 1 Spare Parts

	Plymovent Number	Voltage/ Phase*	Rated Amp Load for Ctrl Box**	Contactor	Overload Relay	F1 & F2***	F3***
SA-24 for 1/2 HP fan							
	00000102053	115V/1ph	7.6	00000100389	00000100390	00000116071	0000101409
	00000102054	230V/1ph	3.8	00000100389	00000101443	00000116054	0000101409
	00000102055	230V/3ph	1.78	00000100389	00000101443	00000116054	0000101409
	00000102056	460V/3ph	0.81	00000100389	00000102475	00000116067	0000101409
	00000102057	575V/3ph	0.66	00000100389	00000102475	00000116067	0000101409
SA-24 for 3/4 HP fan							
	00000102058	115V/1ph	10.6	00000100389	00000100390	00000116071	0000101409
	00000102059	230V/1ph	5.3	00000100389	00000100390	00000116054	0000101409
	00000102060	230V/3ph	2.41	00000100389	00000101443	00000116054	0000101409
	00000102061	460V/3ph	1.1	00000100389	00000101443	00000116067	0000101409
	00000102062	575V/3ph	0.88	00000100389	00000101443	00000116067	0000101409
SA-24 for 1 HP fan							
	00000102063	115V/1ph	12.8	00000100389	00000100390	00000116071	0000101409
	00000102064	230V/1ph	6.4	00000100389	00000100390	00000116054	0000101409
	00000102065	230V/3ph	3.17	00000100389	00000101443	00000116054	0000101409
	00000102066	460V/3ph	1.43	00000100389	00000101443	00000116067	0000101409
	00000102067	575V/3ph	1.12	00000100389	00000101443	00000116067	0000101409
SA-24 for 1.5 HP fan							
	00000102068	115V/1ph	17	00000102473	00000102576	00000116071	0000101409
	00000102069	230V/1ph	8.8	00000100389	00000100390	00000116054	0000101409
	00000102070	230V/3ph	4.36	00000100389	00000100390	00000116054	0000101409
	00000102071	460V/3ph	1.97	00000100389	00000101443	00000116067	0000101409
	00000102072	575V/3ph	1.56	00000100389	00000101443	00000116067	0000101409
SA-24 for 2 HP fan							
	00000116178	115V/1ph	20.4	00000102473	00000102576	00000116071	0000101409
	00000116179	230V/1ph	10.6	00000100389	00000100390	00000116054	0000101409
	00000116180	230V/3ph	6.25	00000100389	00000100390	00000116054	0000101409
	00000116181	460V/3ph	2.83	00000100389	00000101443	00000116067	0000101409
	00000116182	575V/3ph	2.06	00000100389	00000101443	00000116067	0000101409
SA-24 for 3 HP fan							
	00000102073	230V/1ph	14.6	00000100389	00000100390	00000116054	0000101409
	00000102074	230V/3ph	8.4	00000100389	00000100390	00000116054	0000101409
	00000102075	460V/3ph	3.8	00000100389	00000101443	00000116067	0000101409
	00000102076	575V/3ph	3.04	00000100389	00000101443	00000116067	0000101409
SA-24 for 5 HP fan							
	00000102077	230V/1ph	22	00000102473	00000102576	00000116054	0000101409
	00000102078	230V/3ph	13	00000100389	00000100390	00000116054	0000101409
	00000102079	460V/3ph	5.9	00000100389	00000100390	00000116067	0000101409
	00000102080	575V/3ph	4.72	00000100389	00000100390	00000116067	0000101409
SA-24 for 7.5 HP fan							
	00000116161	230V/1ph	32	00000102474	00000102477	00000116054	0000101409
	00000102082	230V/3ph	19.2	00000102474	00000102477	00000116054	0000101409
	00000102083	460V/3ph	8.66	00000100389	00000100390	00000116067	0000101409
	00000102084	575V/3ph	6.93	00000100389	00000100390	00000116067	0000101409

Table 1 Spare Parts Continued

	Plymovent Number	Voltage/Phase*	Rated Amp Load for Ctrl Box**	Contactors	Overload Relay	F1 & F2***	F3***
SA-24 for 10 HP fan							
	00000116162	230V/1ph	38.8	00000102474	00000116837	00000116054	0000101409
	00000102086	230V/3ph	25.8	00000102474	00000102477	00000116054	0000101409
	00000102087	460V/3ph	11.7	00000100389	00000100390	00000116067	0000101409
	00000102088	575V/3ph	9.35	00000100389	00000100390	00000116067	0000101409
SA-24 for 15 HP fan							
	00000116148	230V/3ph	37.6	00000102474	00000116837	00000116054	0000101409
	00000102090	460V/3ph	17	00000102474	00000102477	00000116067	0000101409
	00000102091	575V/3ph	13.6	00000100389	00000100390	00000116067	0000101409
Common Parts							
Transformer	00000100381	Multiple tap					
Door Key	00806013040	N/A					

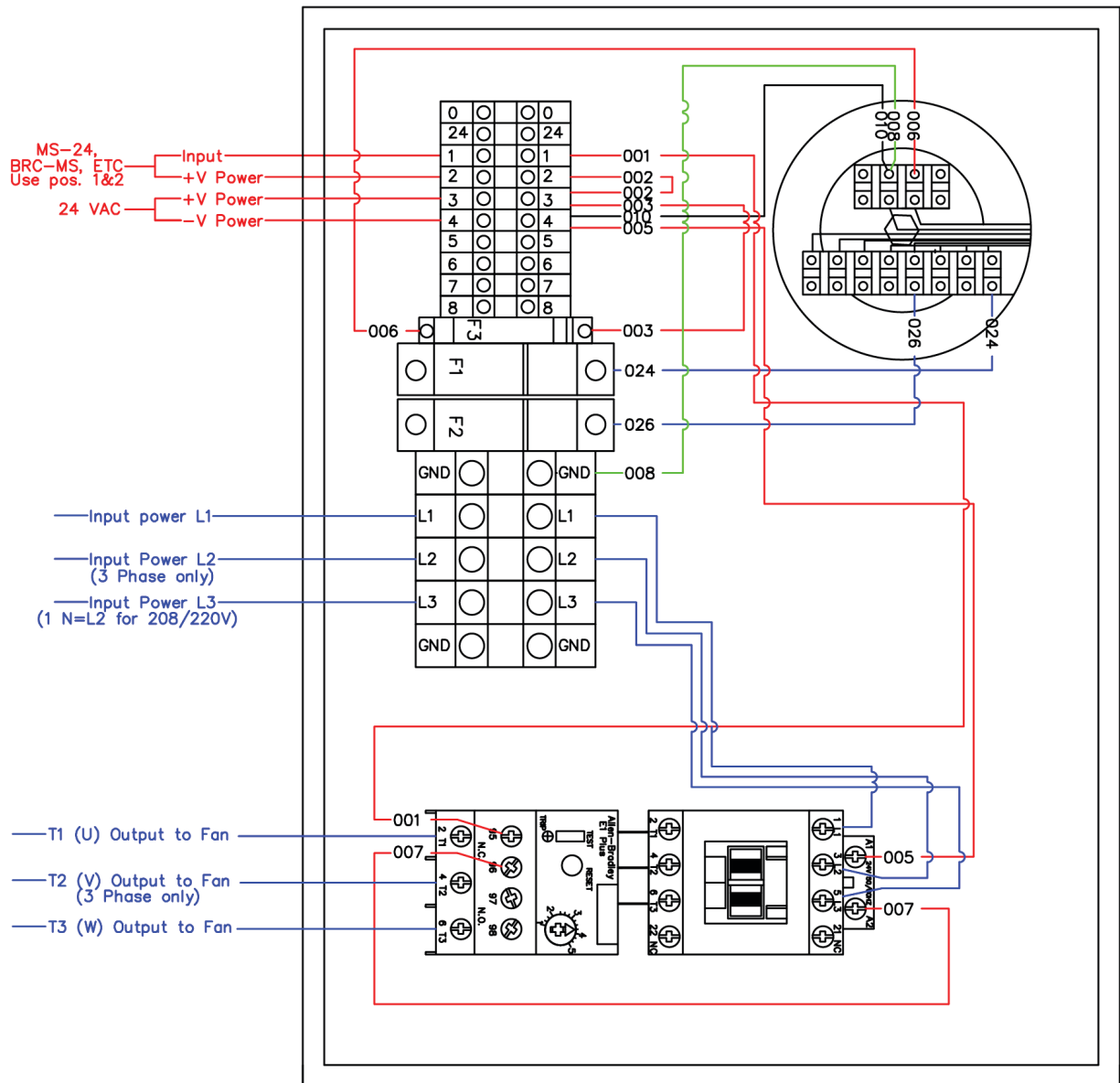
* Voltage not to exceed 8% listed voltage. For 208V adjustment of tap on transformer maybe required (configured by others).

** Amp load is acquired for a Plymovent Fan running at optimal voltage. Adjustment may be required based on local voltages (to be done by proper personnel/technician).

*** Minimum order quantity may be required.

This list is subject to change without notice. Please refer to your local dealer/representative for most up to date documentation.

Figure 1 Wiring Chart



NOTES: Ensure input voltage is within 8% of listed voltage on the transformer. If not, Wire 026 to be adjusted to proper input Voltage. For Single Phase Boxes L3 not present in single phase Control Boxes. For Single Phase Boxes N represents L2 for 220/208 V. Output voltage from transformer not to exceed 27VAC.

Table 2A / Three Phase: Fan Component Sizing Chart

Plymovent Product No.	HP Rating	Voltage	NEC Table 430.250 Amps	Wire Size THHN AWG	Length of Wire in Feet (Meters) Start to Finish*		Circuit Breaker Size
					From	To*	
FUA-1300-1-AM	1/2	208	2.4	14	0	478 (145.6)	15A
FUA-1300-2-AM		230	2.2	14	0	576 (175.5)	15A
		460	1.1	14	0	2,306 (702.8)	15A
		575	.9	14	0	3,524 (1,074)	15A
FUA-1800-1-AM	3/4	208	3.5	14	0	327 (99.6)	15A
FUA-1800-2-AM		230	3.2	14	0	396 (120.7)	15A
		460	1.6	14	0	1,585 (483.1)	15A
		575	1.3	14	0	2,439 (743.4)	15A
FUA-2100-1-AM	1	208	4.6	14	0	249 (75.8)	15A
FUA-2100-2-AM		230	4.2	14	0	302 (92)	15A
		460	2.1	14	0	1,208 (368.1)	15A
		575	1.7	14	0	1,865 (568.4)	15A
FUA-2700-1-AM	1.5	208	6.6	14	0	173 (52.7)	15A
FUA-3000-1-AM		230	6	14	0	211 (64.3)	15A
FUA-2700-2-AM		460	3	14	0	845 (257.5)	15A
FUA-3000-2-AM		575	2.4	14	0	1,321 (402.6)	15A
TEV-359-60	2	208	7.5	14	0	152 (46.3)	15A
		230	6.8	14	0	186 (56.6)	15A
		460	3.4	14	0	746 (227.3)	15A
		575	2.7	14	0	1,174 (357.8)	15A
TEV-3110-60	3	208	10.6	14	0	108 (32.9)	15A
FUA-4700-1-AM		230	9.6	14	0	132 (40.2)	15A
FUA-4700-2-AM		460	4.8	14	0	528 (160.9)	15A
		575	3.9	14	0	813 (247.8)	15A
TEV-559-60	5	208	16.7	10	0	173 (52.7)	30A
		230	15.2	12	0	132 (40.2)	20A
		460	7.6	14	0	333 (101.4)	15A
		575	6.1	14	0	519 (158.1)	15A
TEV-585-60	7.5	208	24.2	8	0	191 (58.2)	40A
		230	22	10	0	146 (44.5)	30A
		460	11	14	0	230 (70.1)	15A
		575	9	14	0	352 (107.2)	15A
TEV-745-60	10	208	30.8	8	0	150 (45.7)	40A
		230	28	8	0	182 (55.4)	40A
		460	14	12	0	287 (87.4)	20A
		575	11	14	0	288 (87.7)	15A
TEV-768-60	15	208	46.2	6	0	158 (48.1)	60A
		230	42	6	0	193 (58.8)	50A
		460	21	10	0	305 (92.9)	30A
		575	17	10	0	472 (143.8)	30A

*If wire length is longer than distance listed, upsize to next larger AWG.

Note: Guidelines are subject to change without notice. Data supplied from our primary motor supplier. Please confirm at time of order. Plymovent assumes no liability for any electrical installation, all local, city, and the 2014 National Electric Code must be followed. This chart is a minimum standard and to be used as a guideline only. Based on a 3% voltage drop for branch circuits.

Table 2B / Single Phase: Fan Component Sizing Chart

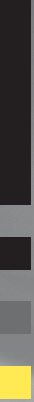
Plymovent Product No.	HP Rating	Voltage	NEC Table 430.248 Amps	Wire Size THHN AWG	Length of Wire in Feet (Meters) Start to Finish*		Circuit Breaker Size
					From	To*	
FUA-1301-AM	1/2	115	9.8	12	0	88 (26.8)	20A
		208	5.4	14	0	184 (56)	15A
		230	4.9	14	0	224 (68.2)	15A
FUA-1801-AM	3/4	115	13.8	10	0	100 (30.4)	30A
		208	7.6	14	0	130 (39.6)	15A
		230	6.9	14	0	159 (48.4)	15A
FUA-2101-AM	1	115	16	10	0	86 (26.2)	30A
		208	8.8	12	0	179 (54.5)	20A
		230	8	12	0	217 (66.1)	20A
FUA-2701-AM	1.5	115	20	10	0	70 (21.3)	30A
FUA-3001-AM		208	11	12	0	143 (43.5)	20A
		230	10	12	0	174 (53)	20A
TEV-359-60	2	115	24	8	0	92 (28)	40A
		208	13.2	12	0	119 (36.2)	20A
		230	12	12	0	145 (44.1)	20A
FUA-4701-AM	3	208	18.7	10	0	134 (40.8)	30A
TEV-3110-60		230	17	10	0	163 (49.6)	30A
		460	**	14	0	325 (99)	15A
TEV-559-60	5	208	30.8	8	0	130 (39.6)	40A
		230	28	8	0	158 (48.1)	40A
		460	**	14	0	209 (63.7)	15A
TEV-585-60	7.5	208	44	6	0	144 (43.8)	50A
		230	40	6	0	175 (53.3)	50A
		460	**	10	0	347 (105.7)	30A
TEV-745-60	10	208	55	4	0	184 (56)	60A
		230	50	6	0	140 (42.6)	60A
		460	**	10	0	286 (87.1)	30A

*If wire length is longer than distance listed, upsize to next larger AWG.

**2014 NEC Table 430.248 does not list 460 volt single phase motors.

Note: Guidelines are subject to change without notice. Data supplied from our primary motor supplier. Please confirm at time of order. Plymovent assumes no liability for any electrical installation, all local, city, and the 2014 National Electric Code must be followed. This chart is a minimum standard and to be used as a guideline only. Based on a 3% voltage drop for branch circuits.

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