



Flex-Flo Control Unit

For 208-230 Volt, 1 PH and 3 PH Applications

Operation Manual

PNEG-1955

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All information, illustrations, photos, and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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1. Safety

Safety Guidelines

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in **SERIOUS INJURY or DEATH**.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

ST-0001-3

Cautionary Symbols Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.



This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury.**



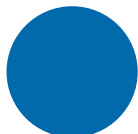
This symbol is used to address practices not related to personal injury.



This symbol indicates a general hazard.



This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection



Respiratory Protection



Foot Protection



Hearing Protection



Head Protection



Fall Protection



Hand Protection



- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

Follow Safety Instructions

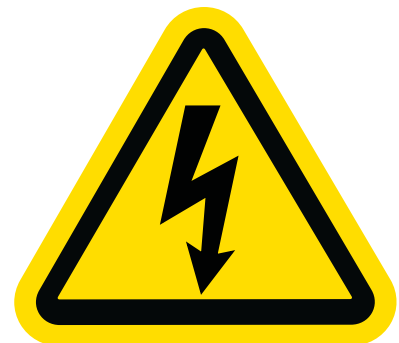
- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.



ST-0002-1

Operate Motor Properly

- All electrical connections must be made in accordance with applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe). Make sure equipment and bins are properly grounded.
- Lock-out power before resetting motor overloads.
- Do not repetitively stop and start the drive in order to free a plugged condition. Jogging the drive in this manner can damage the equipment and drive components.



ST-0009-3

2. Operation and Maintenance of Flex-Flo Control Unit

Standard Systems

The Flex-Flo Control Unit is primarily controlled by an auxiliary switch, such as a proximity switch or infrared sensor or hopper level control. Refer to wiring diagrams [on Pages 14-24](#) that matches the auxiliary switch used. The auxiliary switch is installed underneath the Flex-Flo Control Unit. The Flex-Flo auger can only run when the auxiliary switch is calling for feed. If the auxiliary switch fails to shut the Flex-Flo auger OFF when the feed is full, the feed will build-up inside the box behind the control unit and the safety backup switch will be activated. As a result, the Flex-Flo auger will shut off until the feed drops away.

Extension Systems

The Flex-Flo Control Unit may also be used to control a fill system auger that feeds into an extension system auger. In the case of an extension system, there is no auxiliary switch used to control the fill system auger. If the fill system auger is to be controlled independent of the extension system auger, there must be a jumper wire across the “Auxiliary” switch terminals marked “Signal IN” and “Signal Out” of the fill system control unit. Refer to wiring diagram for “Flex-Flo Control Unit Extension System - Independent” [on Page 18](#). When wired this way, the fill system auger is controlled by the safety backup switch.

If the fill system auger is to be controlled by the extension system auger, there needs to be a two (2) conductor cord from the fill system control unit “Auxiliary” terminals marked “Signal IN” and “Signal Out”, to the extension system control unit terminals marked “Relay Output”. Refer to wiring diagram for “Flex-Flo Control Unit Extension System - Dependent” [on Pages 15-17](#). When wired this way, the fill system auger is controlled by the extension system control unit.

Indicator Lights Under Toggle Switch

There is a multi-color indicator light on the end of the Flex-Flo Control Unit underneath the toggle switch. When the light is green, it indicates that the toggle switch is ON and the safety backup switch has not been activated. The Flex-Flo auger will be allowed to run if the auxiliary switch is calling for feed. [\(See Figure 2A.\)](#)

When the light is red, it indicates that the toggle switch is ON and the safety backup switch has been activated. The Flex-Flo auger will not run. [\(See Figure 2B.\)](#)



Figure 2A Control on Box - Green



Figure 2B Control on Box - Red

LED Indicator Lights Inside Enclosure

There are three (3) LED indicator lights inside the enclosure on the lower left portion of the bottom PC board. The left LED is red and indicates when the Flex-Flo Control Unit is in “sensitivity level programming mode” used to adjust the sensitivity level of the safety backup switch.

The center LED is yellow and indicates when the safety backup switch has been activated and is detecting feed. When this light is ON, the Flex-Flo auger will not run.

The right LED is green. When it is on solid, the safety backup switch has not been activated and the Flex-Flo auger will be allowed to run as long as the auxiliary switch is calling for feed. When the green LED is flashing, the Flex-Flo auger is in the 30 seconds time delay period prior to being allowed to run.

(See Figure 2C.)

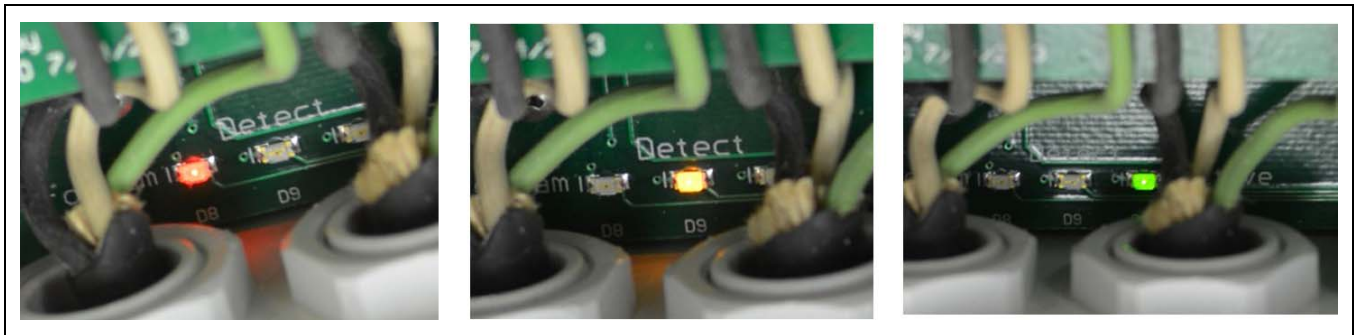


Figure 2C LED Indicator Lights Inside Enclosure

Safety Backup Switch Time Delay

The Flex-Flo Control Unit safety backup switch has a fixed 30 seconds time delay. Once feed falls away from the safety backup switch, the Flex-Flo Control Unit will begin to count down until the 30 seconds has expired. At that time, the Flex-Flo auger will be allowed to run as long as the auxiliary switch is calling for feed. The green LED inside the enclosure on the lower left portion of the bottom PC board will flash during the 30 seconds time delay period. Once the 30 seconds time delay period has expired, the green LED will remain on solid and the Flex-Flo auger will be allowed to run.

Safety Backup Switch Sensitivity Level Adjustment

The safety backup switch inside the Flex-Flo Control Unit does not rely on feed pressure to activate. It uses a special electronic sensor inside the enclosure that can sense the presence of feed through the back plastic wall of the enclosure. When feed builds up to a level that is even with the center of the enclosure, it activates the safety backup switch. This prevents feed pressure from causing a bridging event once the feed falls away.

NOTE: *The safety backup switch is factory adjusted to the proper sensitivity level for most feeds.*

2. Operation and Maintenance of Flex-Flo Control Unit

Calibration Mode

Calibration Mode is used to correct the unit when the Safety Backup Switch does not properly sense the presence of feed through the enclosure and housing wall. It may fail by sensing feed that is not present and prevent the auger motor from starting. Or it may fail by not sensing feed that is present and prevent the auger from shutting off when full, resulting in a motor overload.

When starting Calibration Mode, the sensitivity will be displayed by flashing the external red LED according to the sensitivity level. (There are 6 levels, with “6” being the most sensitive, “1” being the least sensitive and “4” being the default setting.) The sensitivity level should be set on “4” and rarely needs to be adjusted. Please contact an AP or Cumberland technician for instructions on Sensitivity Adjustment.

During Calibration Mode, the external red LED will flash 4 times, followed by a pause, indicating that the sensitivity is set on “4”. It will continue this sequence of flashes for 15 seconds, before completing a red/green LED flashing sequence for 5 seconds at the end of the Calibration Mode cycle.

NOTE: In Calibration Mode feed MUST NOT be in front of the Flex-Flo Control Unit.

Auto-Calibration at First Time Start-Up

When the customer receives a new Flex-Flo unit, it will not be calibrated. Upon start-up the first time the unit receives power, the Flex-Flo will automatically enter Calibration Mode. See Calibration Mode above.

Manual Calibration

At start-up (turn the power switch on the side from the OFF to the ON position) the red external LED light will flash one time. Right after the one flash and the LED turns OFF, turn the power switch OFF and back ON again. The red external LED will now flash two (2) times. When the LED goes OFF after the second flash, turn the power OFF and back ON again. The red external LED will now flash three (3) times. After the third flash, turn power OFF and back ON. The unit will now enter Calibration Mode.

Error Signals

Broken Sensor

The red external LED will continuously flash in normal runtime mode.

Calibration Failed

The red external LED will continuously flash very quickly and the auger will not run. If calibration failed during a Manual Calibration, the unit will return to its previous calibration when power is turned OFF and back ON again. If Calibration failed during an Auto-Calibration, another Auto-Calibration will be attempted when power is turned OFF and back ON again.

Calibration Lost

A Manual Calibration must be performed to correct this problem.

Replacing Top Circuit Board

Before determining if top circuit board is bad, contact your nearest AP or Cumberland Service Representative to aid in diagnosis.

To replace the top circuit board, begin by removing the “Incoming Power” and “Flex-Flo Motor” wires from the left terminal block. Un-plug the “Auxiliary Switch” terminal block plugs on the right side of the top circuit board. Unplug the “Toggle Switch” spade terminal wires from the right side of the top board. Remove the Flex-Flo relay terminal connection from the left side of the top board. Remove the four (4) screws (S-7393) that secure the top board to the bottom board.

To attach a new top circuit board, reverse the procedure above. *(See Figure 2D.)*

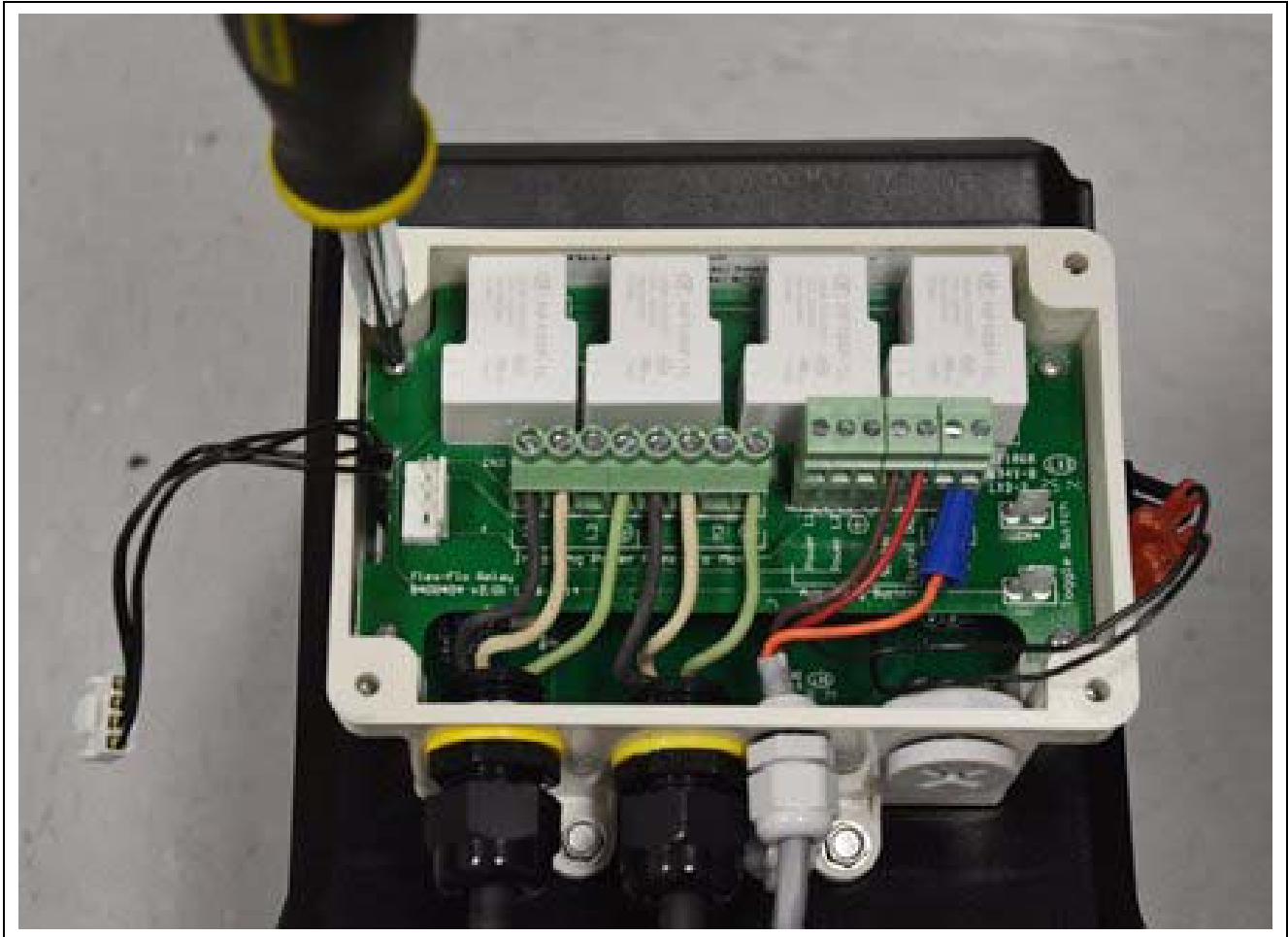
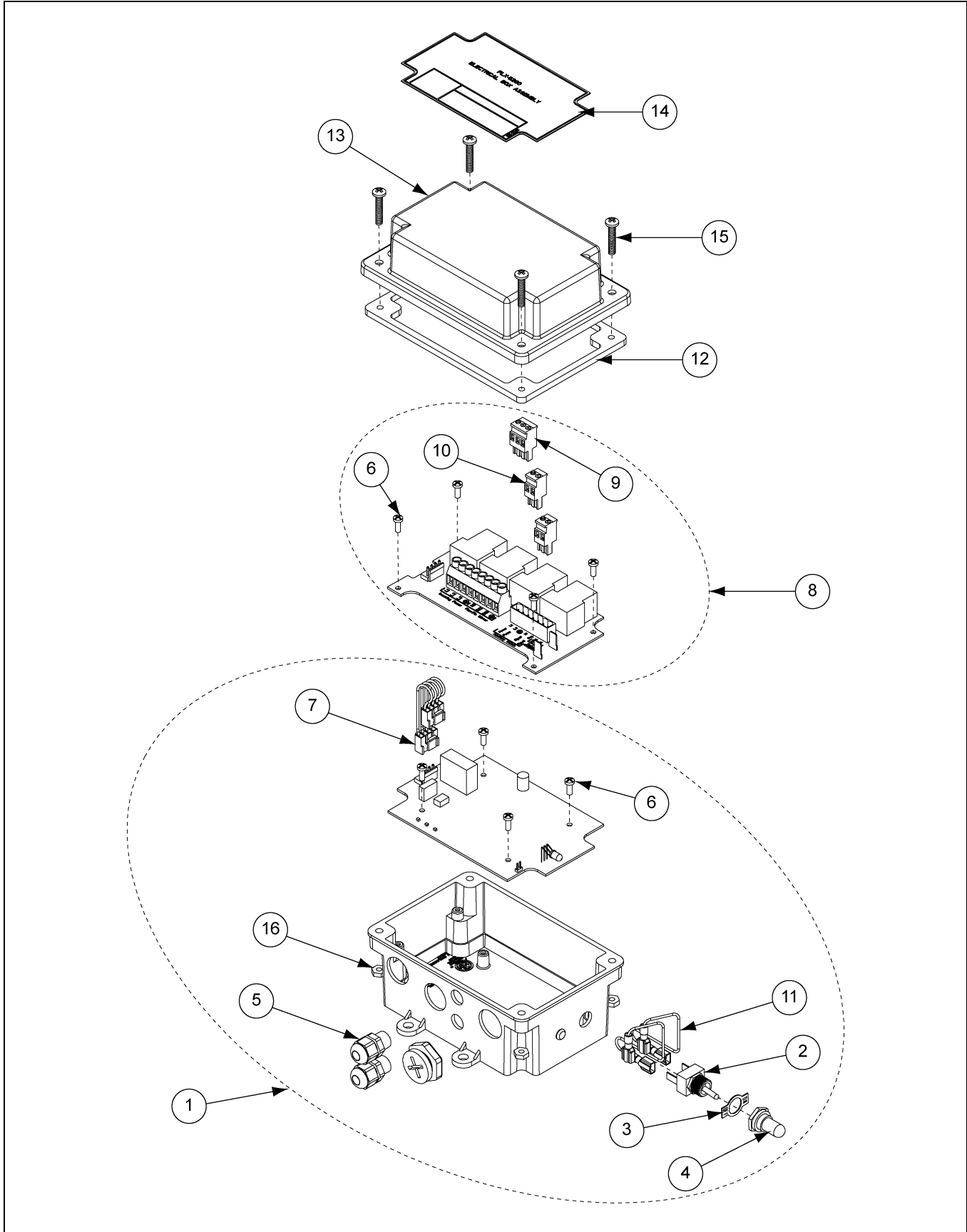


Figure 2D *Remove Connections from Board*

Flex-Flo Control Unit (FLX-5260)

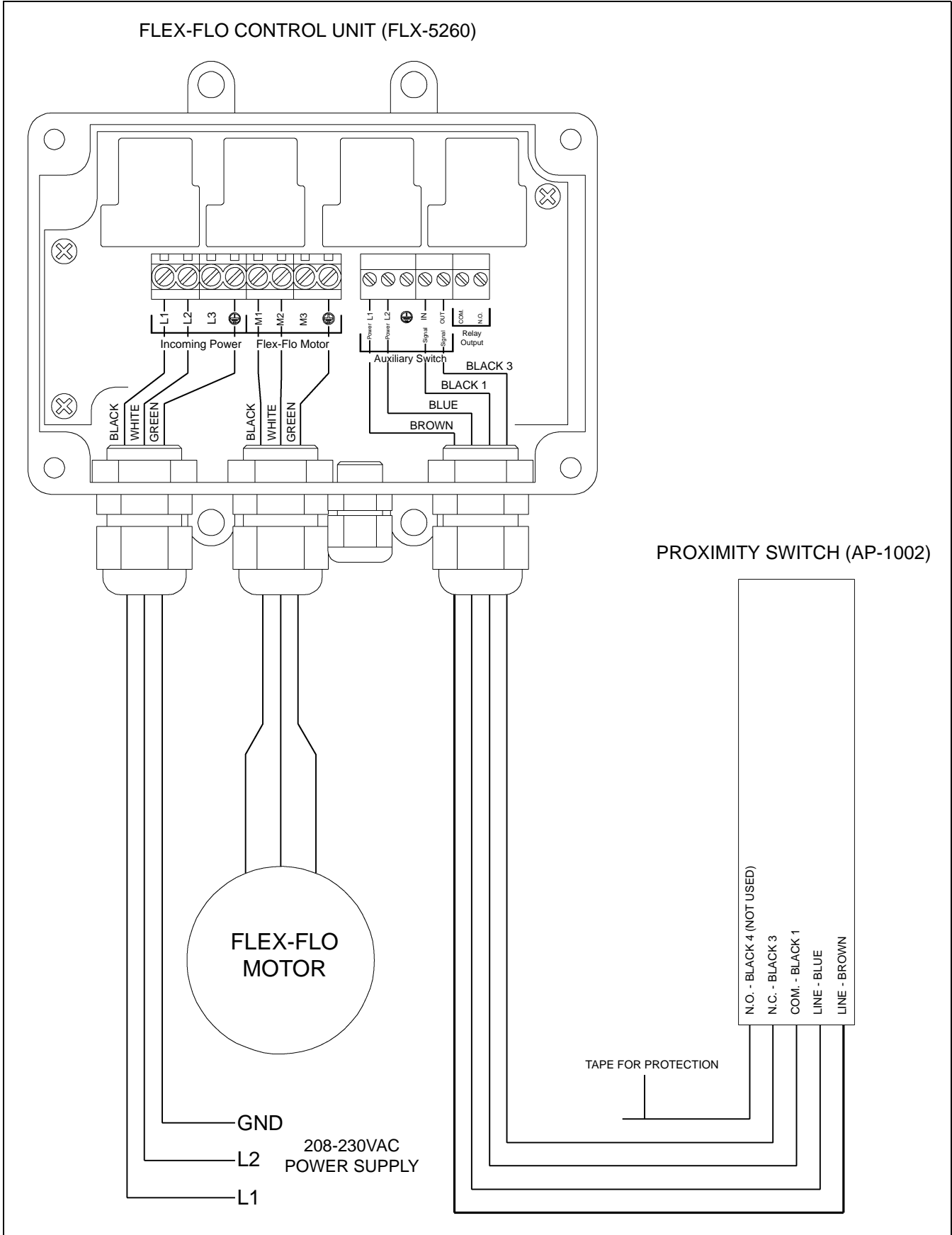


Flex-Flo Control Unit (FLX-5260) Parts List

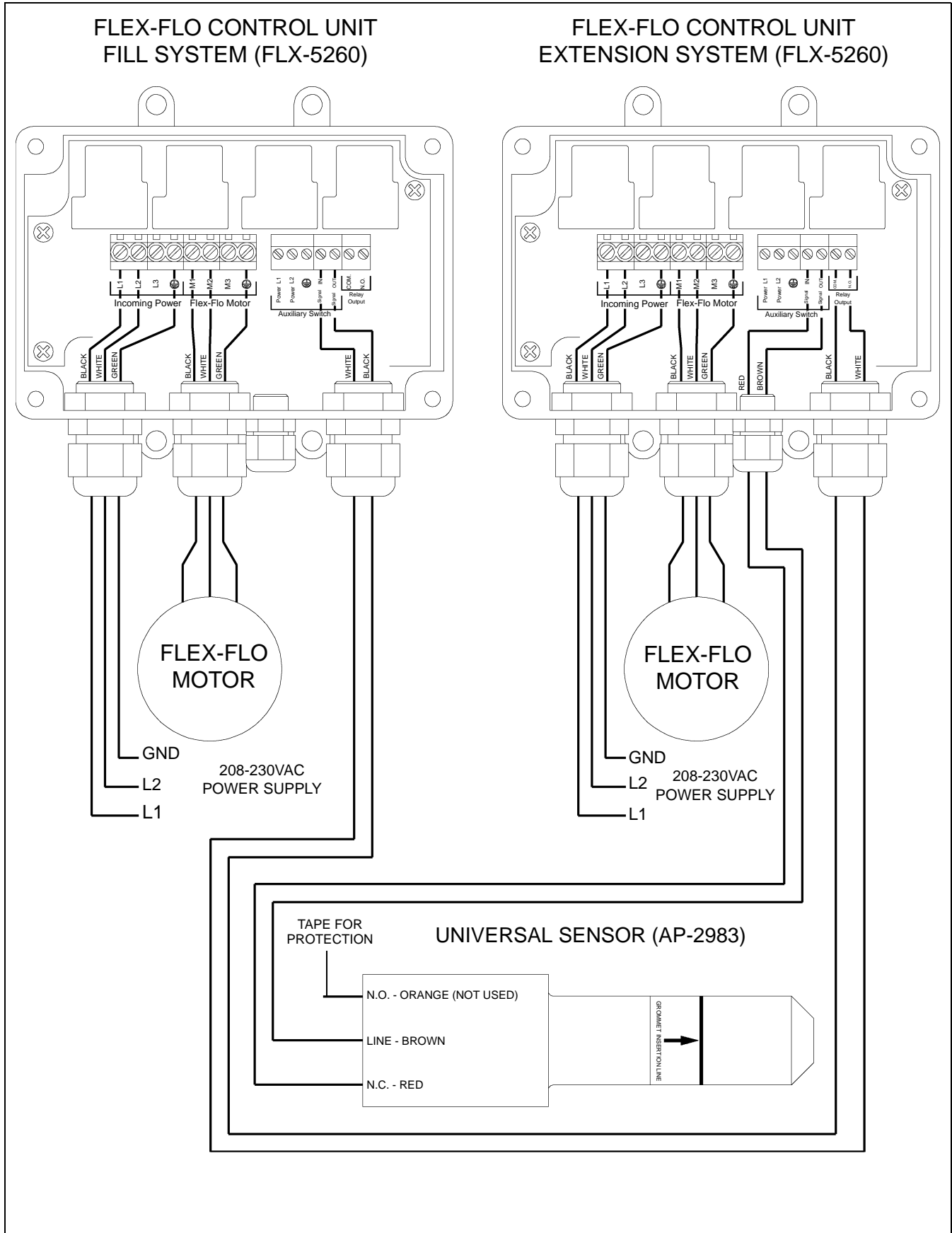
Ref #	Part #	Description	Qty
1	FLX-5260-B	Bottom Circuit Board with Enclosure	1
2	20-5060	Switch, Toggle SPST 15A with ON/OFF	1
3	S-6622	ON-OFF Back Plate	1
4	70-0129	Boot Switch Weatherproof	1
5	S-10292	Cable Gland, PG7 Thread Size (BECS Technology)	2
6	S-8183	Screw, MS #6-32 x 3/8" PHP ZN	8
7	FLX-5308	Plug, 4 Wire for FLX-5260	1
8	FLX-5260-T	Top Circuit Board Assembly for FLX-5260	1
9	FLX-5270-3	Terminal Block Plug, Three (3) Connector for FLX-5260	1
10	FLX-5270-2	Terminal Block Plug, Two (2) Connector for FLX-5260	2
11	EI05-1024	Wire Kit for FLX-5260 Switch	2
12	FLX-4561	4 x 6 Electrical Box Gasket	1
13	FLX-4560	Cover, Electrical Box Lid 4 x 6	1
14	DC-2385	Decal, Flex-Flo Control Lid for FLX-5260	1
15	S-995	Screw, MS #10-24 x 1" SS	4
16	S-7931	Hex Nut #10-24 SS	4

4. Wiring Diagrams

Flex-Flo Control Unit Used with 5 Wire Sensor

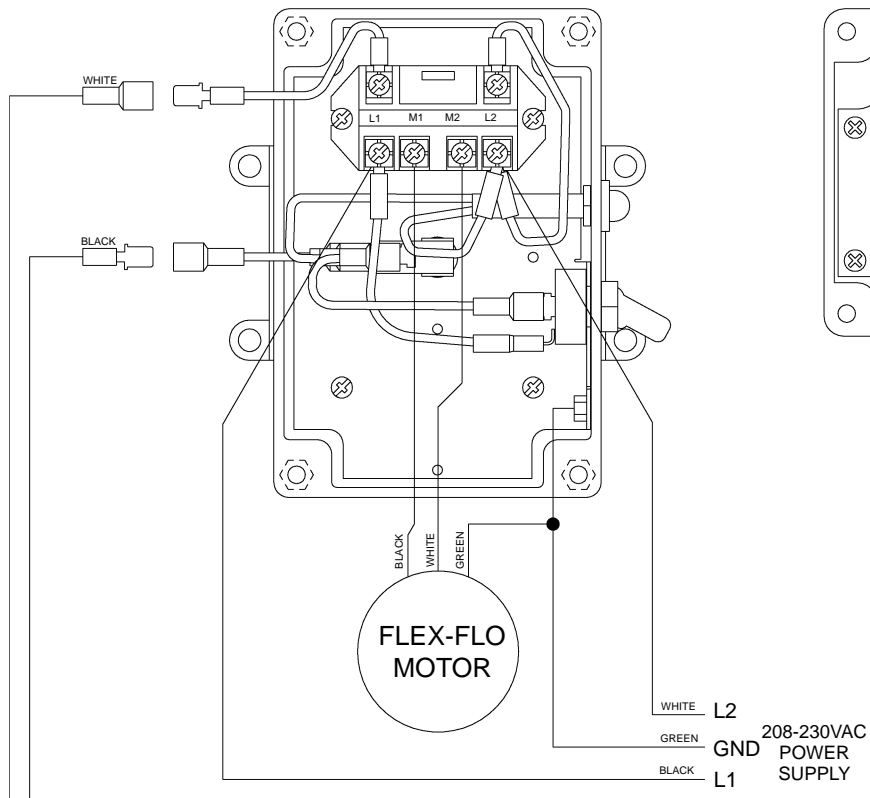


Flex-Flo Control Unit Extension System - Dependent

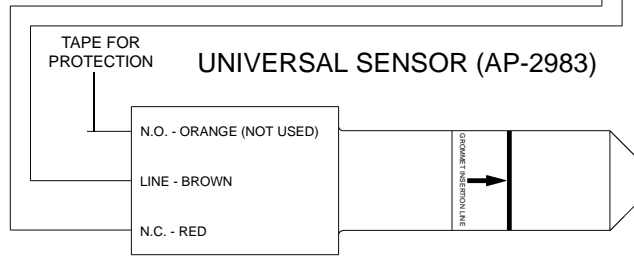
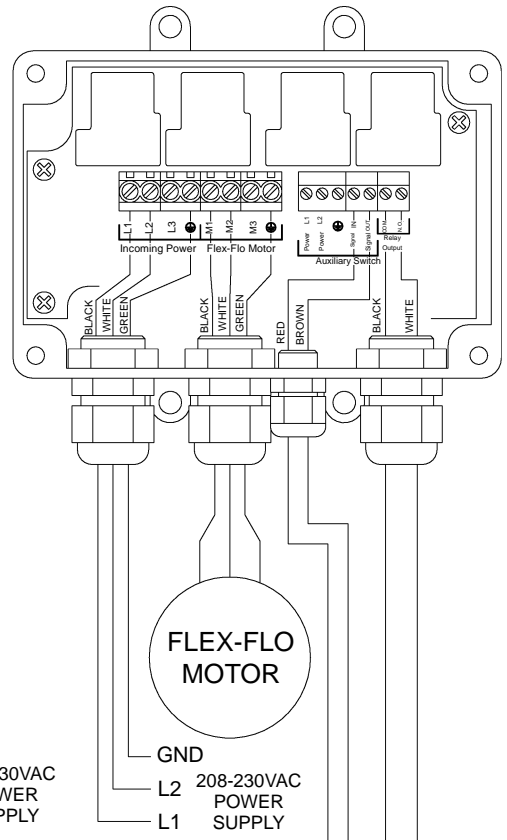


Flex-Flo Control Unit Extension System - Dependent (Continued)

FLEX-FLO CONTROL UNIT
FILL SYSTEM (FLX-4512)

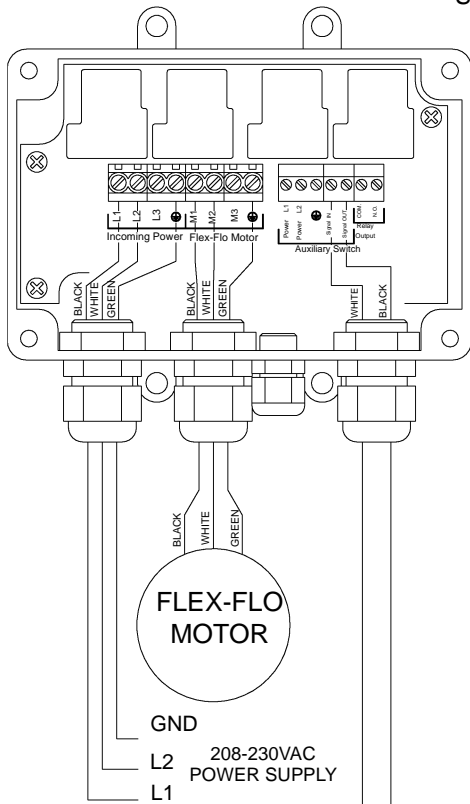


FLEX-FLO CONTROL UNIT
EXTENSION SYSTEM (FLX-5260)



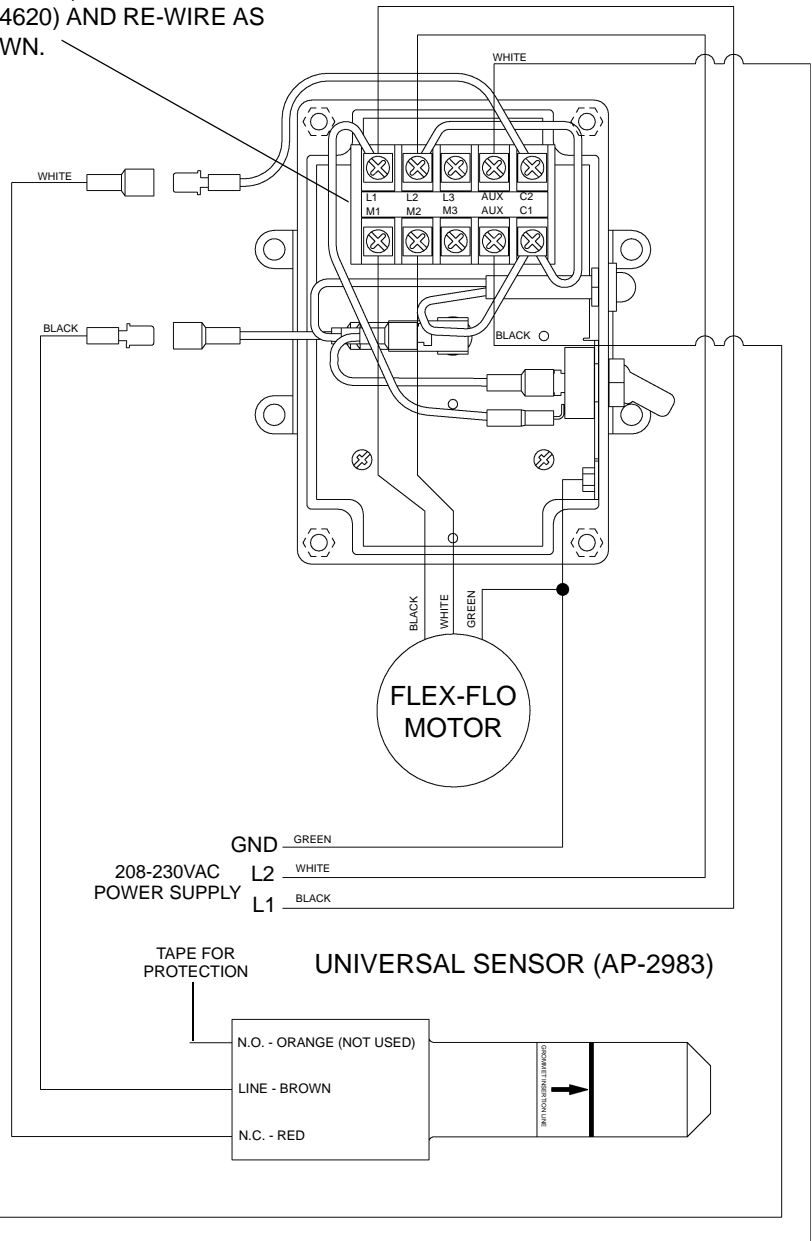
Flex-Flo Control Unit Extension System - Dependent (Continued)

FLEX-FLO CONTROL UNIT FILL SYSTEM (FLX-5260)



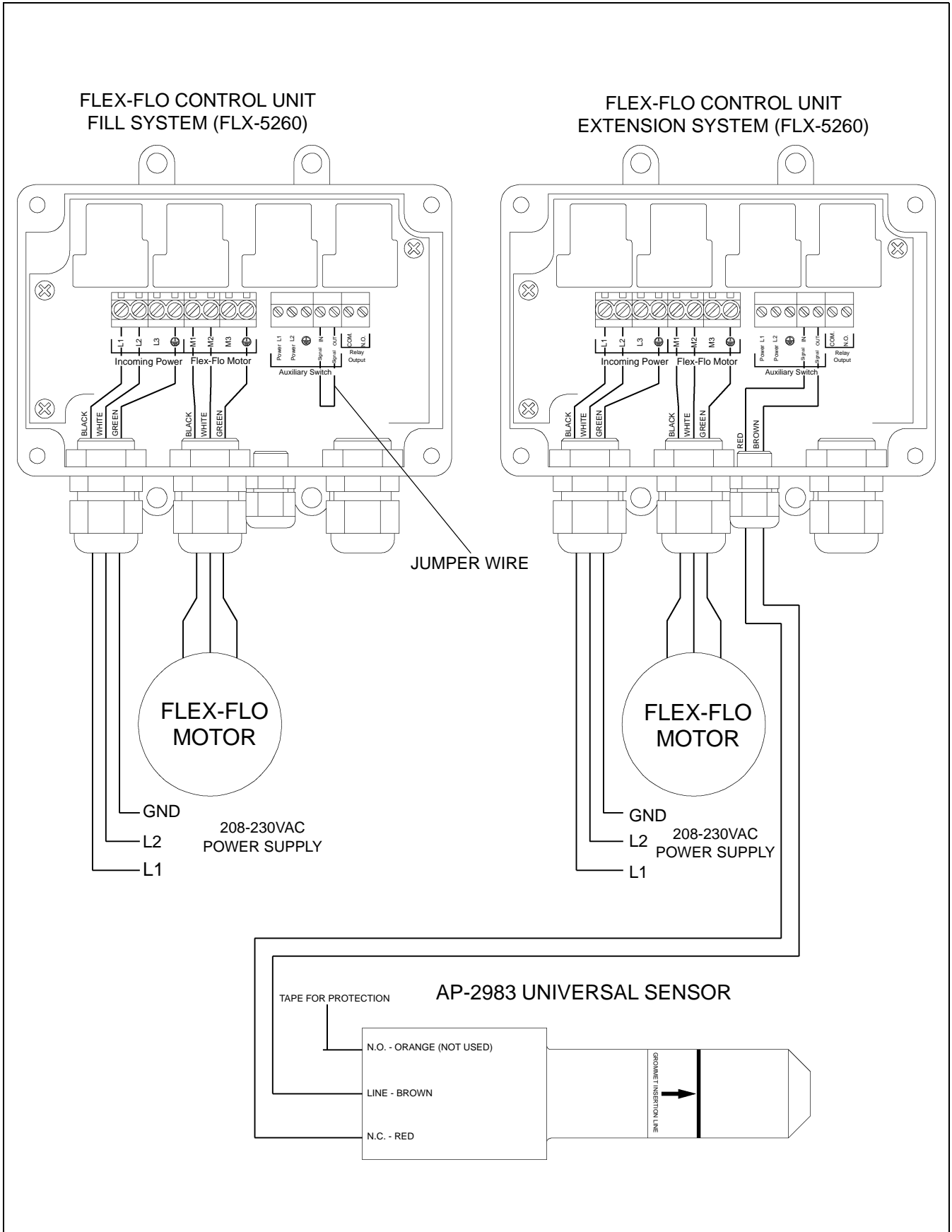
REPLACE 2-POLE RELAY WITH 4-POLE RELAY PLUS BRACKET (FLX-4619 PLUS FLX-4620) AND RE-WIRE AS SHOWN.

FLEX-FLO CONTROL UNIT EXTENSION SYSTEM (FLX-4512)

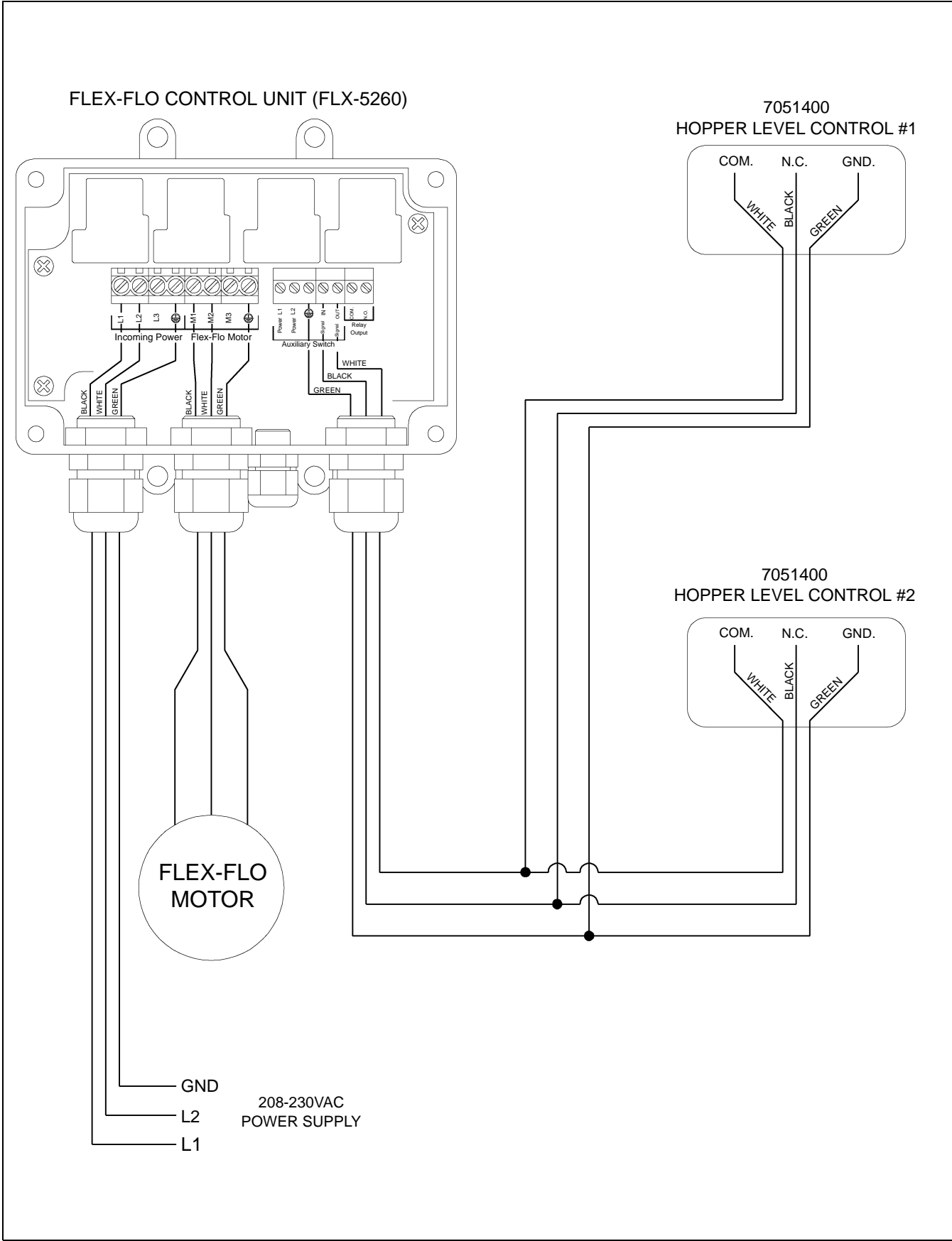


4. Wiring Diagrams

Flex-Flo Control Unit Extension System - Independent

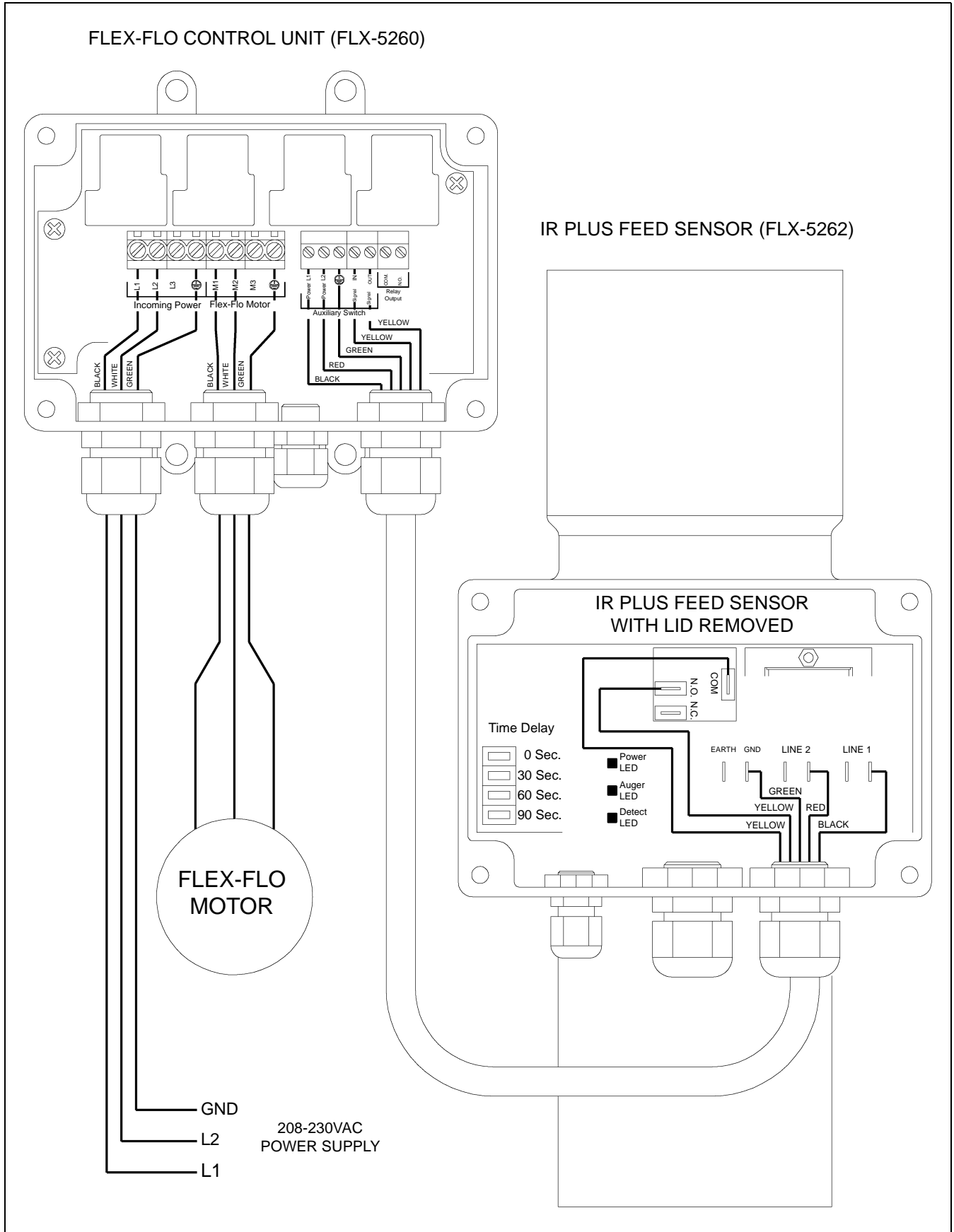


Flex-Flo Control Unit Used with Hopper Level Controls

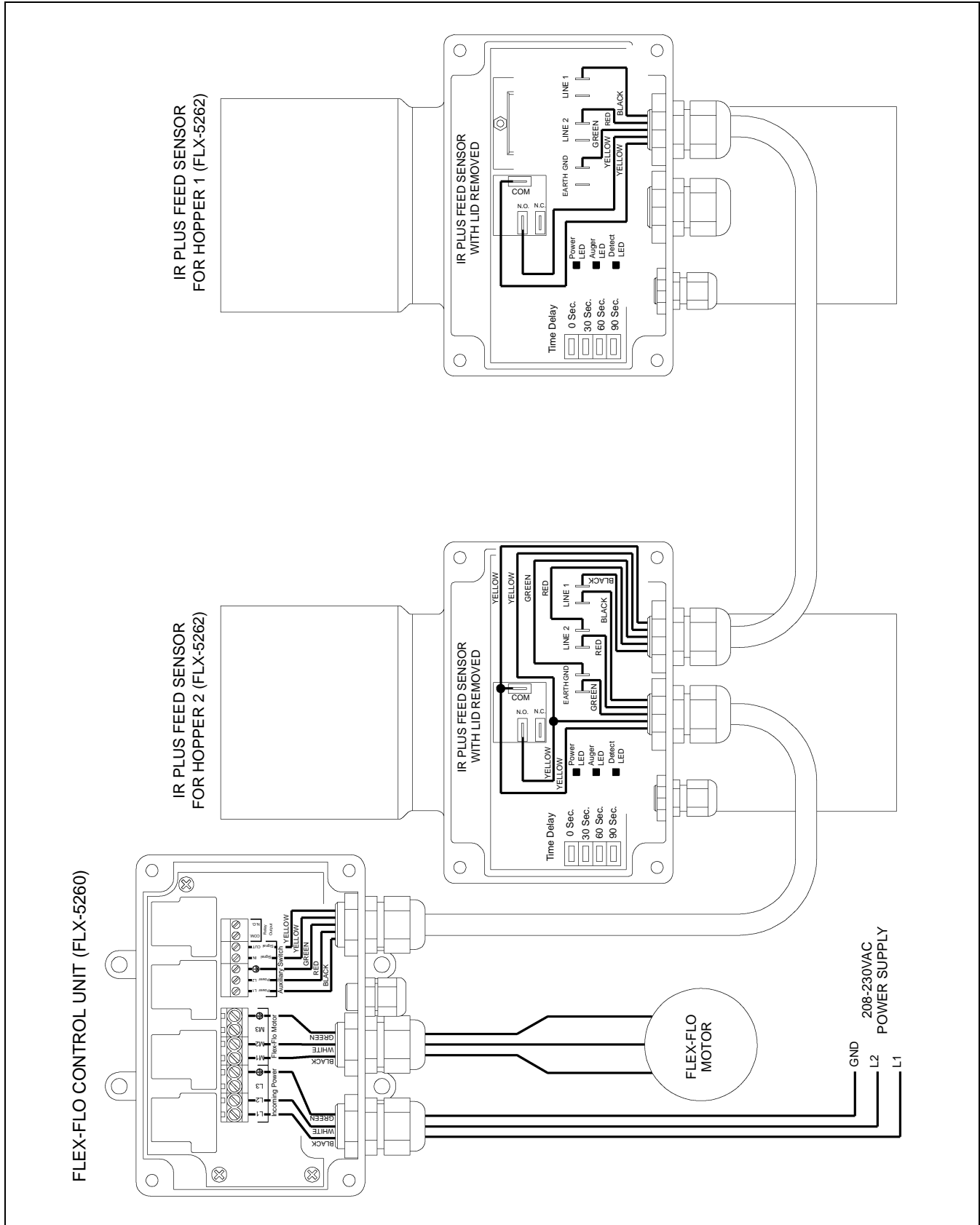


4. Wiring Diagrams

Flex-Flo Control Unit Used with IR Plus Feed Sensor

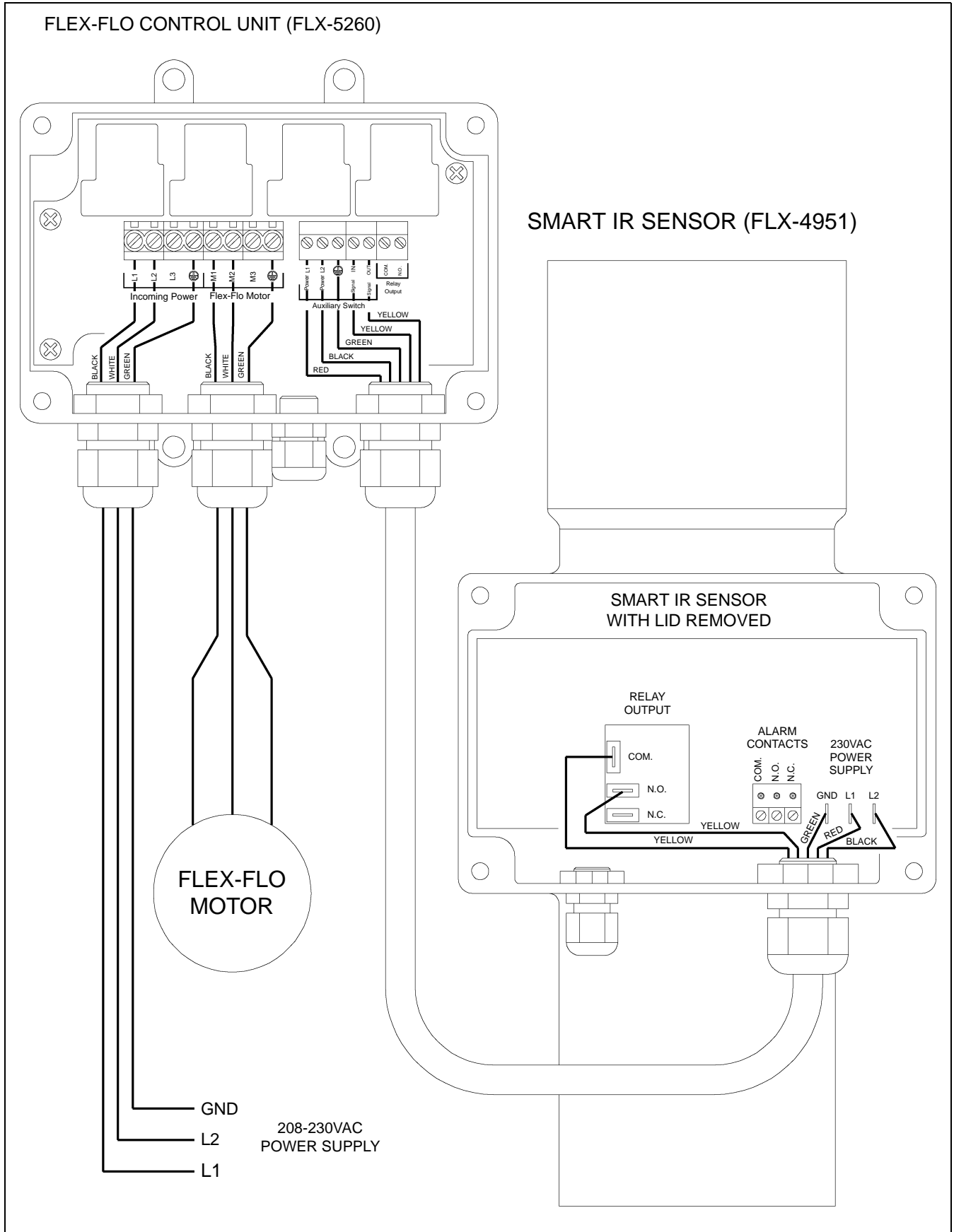


Flex-Flo Control Unit Used with IR Plus Feed Sensor as Hopper Level Controls

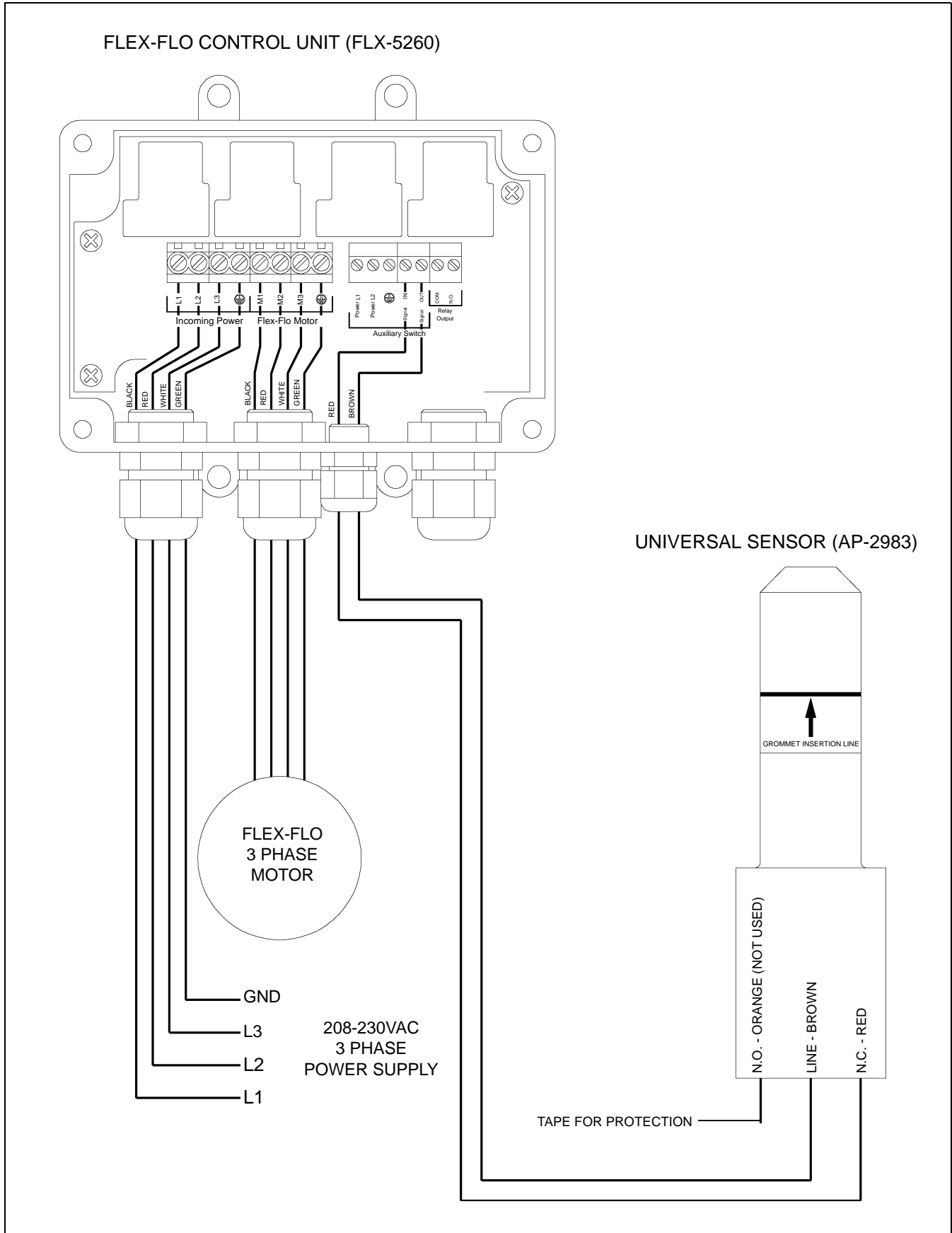


4. Wiring Diagrams

Flex-Flo Control Unit Used with Smart IR Sensor

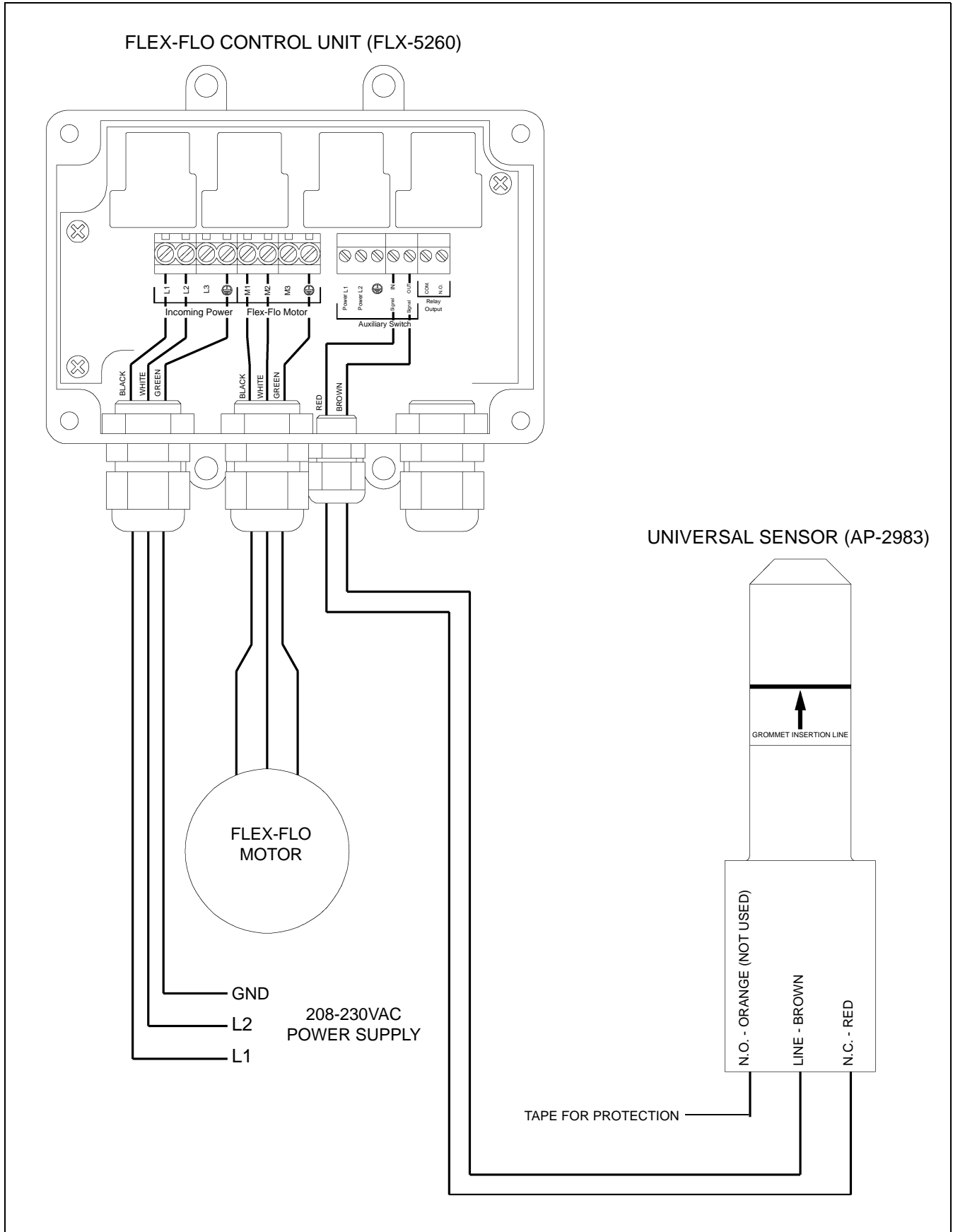


Flex-Flo Control Unit Used with 3 Phase Power



4. Wiring Diagrams

Flex-Flo Control Unit Used with Universal Sensor



GSI Group, LLC Limited Warranty

The GSI Group, LLC ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

Warranty Extensions:

The Limited Warranty period is extended for the following products:

	Product	Warranty Period	
AP Fans and Flooring	Performer Series Direct Drive Fan Motor	3 Years	* Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 25% 5 to 7 years - end-user pays 50% 7 to 10 years - end-user pays 75%
	All Fiberglass Housings	Lifetime	
	All Fiberglass Propellers	Lifetime	
AP and Cumberland	Flex-Flo/Pan Feeding System Motors	2 Years	
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **	** Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 50%
	Feed Tubes (1-3/4" and 2.00")	10 Years *	
	Centerless Augers	10 Years *	
	Watering Nipples	10 Years *	
Grain Systems	Grain Bin Structural Design	5 Years	
Grain Systems Farm Fans Zimmerman	Portable and Tower Dryers	2 Years	† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years	

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12th) month from the date of purchase and continuing until the sixtieth (60th) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) PRODUCT MANUFACTURED OR SOLD BY GSI OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.



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