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Manual Supplement for a NB-500-LE Swinging Door Operator to be setup as Low Energy Power per ANSI 156.19*

* This supplement overrides any conflict with the standard door operator manual. Refer to the standard manual when required.

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Overview

This **NB-500- LE Low Energy Powered Operator** is designed to receive an actuation signal to open the door from (2) possible sources of a **"Knowing Act":**

1) **Push-N-Go.** By pushing on the door, the operator senses movement, becomes energized, and opens the door. The amount of door movement prior to being energized is fully adjustable.

2) By providing a normally open, momentary (dry contact) input per this manual.

Under normal operation, this operator will automatically close the door after the preset Hold Open Delay (HOD) has been reached. On fire rated doors, it is recommended the door operator be connected to a UPS system in order to assure closing during power interruptions.

Drive Train:

The gear ratio of the in-line gear motor reducer is decreased to 40:1; thus, providing for the lowest Push- N-Go/manual forces, while at the same time assuring adequate operating torque is available to control the door through strong wind loads and/or pressure differentials.

Motor Control:

An enhanced 4-quadrant, regenerative drive features improved forward and reverse current limit (FCL and RCL) resolution and "fine tuning" for optimum stall force settings.

Installation Instructions

See **Parameters** Section for proper adjustment of door opening/closing times, forces and all other settings.

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Parameters for NB-500-LE Door Operator
Supplement (Push 'N' Go /ANSI 156.19)

Door Position:		**Pull Open Presets**	**Push Open Presets**
Latch Check	=	800 (digital value)	800 (digital value)
Back Check	=	2450 (digital value)	2000 (digital value)
Full Open	=	2850 (digital value)	2300 (digital value)
Hold Open Delay (HOD)	=	0005 seconds (min)	0005 seconds (min)
Delay Time	=	0004 (sec)	0004 (sec)
Push 'N' Go (PnG)	=	340 (digital value)	340 (digital value)

Rotary Position Transducer Setting: 320(digital value) door closed position

Motor Control Jumper Setting of KBMG-21D (current range of 0.17-1.0A):

Upper Board (Multi-Speed)

J1 Enable

PRESET 1 (Creep close Speed): **Lo**
R / F
Hi

PRESET 2 (Creep open Speed): **Lo**
R / **F**
Hi

PRESET 3 (Close Speed): **Lo**
R / F
Hi

PRESET 4 (Open Speed): **Lo**
R / **F**
Hi

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Lower Board

J1A- Line Voltage **115V** / 230V
J1B- Line Voltage **115V** / 230V

J2-Armature Current 0.17/ 0.25/ **0.5** / 0.75 /1.0
J3-Armature Voltage **A90** / A180 / T7 / T50
J4-Potentiometer Operation **15V** / 10V
J5-Speed Control **SPD** / TRQ
J6-Regenerate to Stop **RTS** / CTS

Motor Control Trimpot Settings (Approximate)**:**

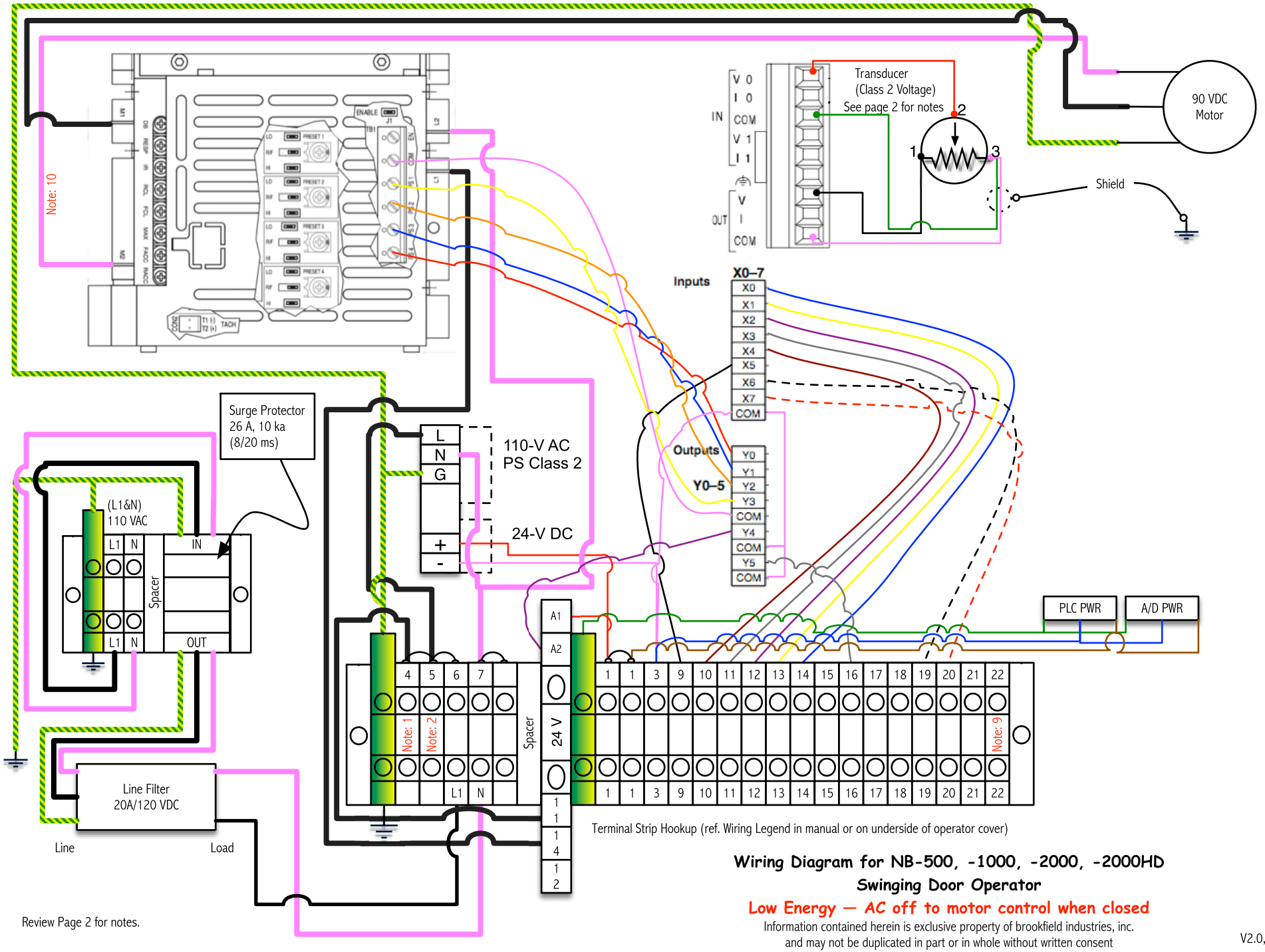
Upper Board (Multi Speed)

PRESET 1-4: Adjust back check and latch check speed trimpots as well as Open and Close trimpots in a clockwise direction. Assure that the minimum closing and opening times (as a function of door weights and widths) have not been violated per ANSI 156.19 where T= D (W) ^1/2/133, T= D (W) ^1/2/2260 (in SI units)

T= Time, seconds to back check or latch check
D= Door width, inches (mm)
W= Door weight, lbs (kg)
Total Open Time = T + 1 second minimum (back check at 80 degrees)
Total Close Time = T + 1.5 seconds minimum (latch check at 10 degrees)

Lower Board

DB	50%
RESP	50%
IR	50%
RCL	40 %(maximum stall at 15 lbs, 1” from strike edge)
FCL	40 %(maximum stall at 15 lbs, 1” from strike edge)
MAX	100%
FACC	0%
RACC	0%



Terminal Strip Hookup (ref. Wiring Legend in manual or on underside of operator cover)

Wiring Diagram for NB-500, -1000, -2000, -2000HD
Swinging Door Operator

Low Energy — AC off to motor control when closed

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Review Page 2 for notes.

Notes:
1.Use 4 Amp/110 VAC Circuit Breaker on NB-500; Use 8 Amp/110 VAC Circuit Breaker on NB-1000 & NB-2000

2.Use 1 Amp/110 VAC Circuit Breaker

3.Class (2) 24 VDC Terminals: Power Supply: (1 & 3) Inputs: 9-14 & 19-22

4.All 110 AC wires shall be minimum 14 AWG & (105° C, 300 V)

5.All motor wires for NB-1000 & NB-2000 shall be minimum 14 AWG & (105° C, 300 V)

6.All motor wires for NB-500 shall be minimum 18 AWG & (105° C, 300 V)

7.All 12-24 VDC (non-motor) wires shall be minimum 20 AWG & (105° C, 300 V)

8. Reserved Outputs: Terminal Strip No. 15, 16

9. Use 3 Amp/110 VAC Ciruit Breaker

10. For push open and door mounted operators, reverse M1 & M2 at motor

11. When using receptacle style chargers, ue GFC-I type.

12. Provides auto-open during power loss

13. Additional 'N' terminal block for battery backup only

14. All motor wires from battery backup enclosure to door operator, shall be 12 AWG (105° C, 300 V)and 25' max. length

15. Install Ferrite Core Red Lion FCOR (2 turns=440 ohm @ 25 MHz) on all incoming AC and DC voltage lines.

Transducer Wiring:
Wire as shown for : RH Operator (pull open), LH Operator (push open), LH Door Mounted
Reverse 1 & 3 for : RH Operator (push open), LH Operator (pull open), RH Door Mounted

Legend:
Pink solid line designates a WHITE wire.