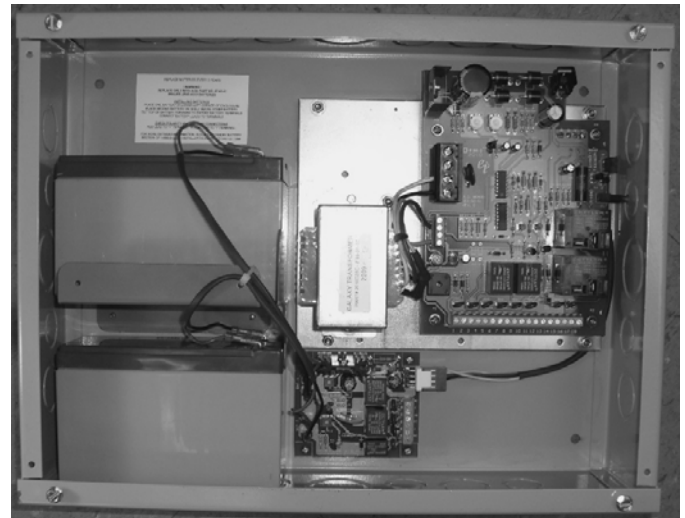




DORMA MODEL PS-426BB POWER SUPPLY INSTALLATION INSTRUCTIONS

Features:

- Up to 1.95 Amps Load Capacity
- Class 2 Rated Outputs
- Overload, Over Voltage, and Short Circuit Protection
- Standby Battery Power with Supervised AC Fail and Low Battery Outputs
- Batteries Supplied with Unit
- Up to Two Output Devices Controlled by One Input
- Day/Night Control with Output for Automatic Door Operator Interface
- Input for Connection to Fire Alarm
- Auxiliary Output for Powering Stand Alone Devices, Such as Keypads, Motion Detectors, and Status Indicators
- UL Listed and Tested to 294 Standard for Access Control System Units



INSTALLATION

Install in accordance with NFPA 70.

The PS-426BB enclosure should be securely fastened to the wall using the four 1/4 inch diameter mounting holes located in the back of the box. Position the enclosure so that the battery compartment is located on the left-hand side. The PS-426BB must not be installed outdoors.

For the 120VAC power input, terminal block TB1 will accommodate up to 12 AWG wire (solid). Conduit must be used to provide an adequate earth ground to the enclosure.

NOTE: The maximum input current is 1.08A with a 12.6A inrush current.

The PS-426BB is designed to be used with all exit devices modified for ESB electric latch retraction. Use the chart below to determine the correct wire gauge per given length of two-conductor cable that will be run from the PS-426BB to each exit device. Do not exceed the maximum length listed with each wire gauge.

WIRE GAUGE	MAXIMUM LENGTH OF TWO-CONDUCTOR CABLE
16 AWG	40 FEET
14 AWG	60 FEET
12 AWG	100 FEET

Up to two devices can be used with the PS-426BB. If only one device is to be used, wire to the "DEVICE ONE" location at TB3, terminals 5 and 6.

STANDARD OPERATION

The PS-426BB is provided with two inputs: one used for momentarily retracting latches sequentially, followed by a signal to activate the automatic door operator; the other used with a maintain switch for sequentially retracting latches only. This system will work for single door applications or on a pair of doors using a device on one or both leaves.

Connect a momentary, normally open switch across terminals 1 and 2 of terminal block TB3. Closing this switch momentarily will retract the latch of DEVICE ONE and DEVICE TWO sequentially and follow with a dry contact closure signal to the automatic door operator. Pot R2 is used to control the length of time that the latch(es) remain retracted and the signal to the automatic door operator remains active. Factory set to five seconds, pot R2 (located at the top of the p.c. board) can be field adjusted to the desired delay time from 2 to 8 seconds. Turn the pot clockwise to increase the delay time.

When using normally open contacts from a keypad or card reader with built-in time delay, turn pot R2 fully counterclockwise to the minimum delay time (approx. 2 sec.). A contact closure will activate latch retraction and activate the automatic door operator. The device(s) will latch and the signal to the automatic door operator will cancel within 2 seconds after the keypad or card reader delay times out.

NOTE: Pot R4 is not used; do not adjust.

Connect a maintain switch across terminals 7 and 8 of terminal block TB3. Closing this switch will sequentially retract the latch of DEVICE ONE and DEVICE TWO, but will not activate the automatic door operator. Upon opening the switch contacts, both devices will immediately latch (no delay before latching).

Connect ESB DEVICE ONE to TB3, terminals 5 and 6; If a second ESB device is used, connect the ESB DEVICE TWO to TB3, terminals 11 and 12. The automatic door operator output, TB3, terminals 9 and 10, consists of normally open relay contacts that are field wired directly to the "DOOR ACTIVATION" input of the automatic door operator.

NOTE: P.C. board program jumper PJ1 must always be left in place between the middle post and the end post marked "S".

SOLENOID ASSEMBLIES - THEORY OF OPERATION.

This device contains a powerful solenoid that performs both pulling and holding functions. An initial high current pulse occurs each time output voltage is applied to the device. After the pulse, the solenoid switches over to a "holding" state by way of frequency modulation which reduces the current to allow the solenoid to run at a cooler temperature.

OPERATION WITH FIRE ALARM

The PS-426BB can be wired to the fire alarm relay normally closed contacts. When a fire alarm occurs, any door that is currently unlatched, whether by momentary time delay or by maintained switch, will immediately latch secure. During the time that the fire alarm is active, electronic control of the automatic door opening system by wall switch, card reader, keypad, etc., is disabled. The door can only be opened manually.

The PS-426BB comes from the factory set up for use without fire alarm interface. If the fire alarm is to be used with this unit, move the program jumper PJ2 from between the middle post and the end post marked "FA DIS" (Fire Alarm Disabled), to between the middle post and the end post marked "FA EN" (Fire Alarm Enabled).

NOTE: The current drawn through fire alarm relay contacts will be 120mA @ 24VDC.

AUXILIARY POWER SOURCE OUTPUT

A constant, power limited auxiliary output is provided for powering a variety of load devices, such as keypads, motion sensors, annunciator panels, electromagnetic door holders, relays, LEDs, etc.

- Auxiliary Output Range:
 - 26.1V – 27.2V, Nominal (commercial power applied)
 - 15.4V – 22.5V, Standby Battery Power (85% nominal to full charge range)

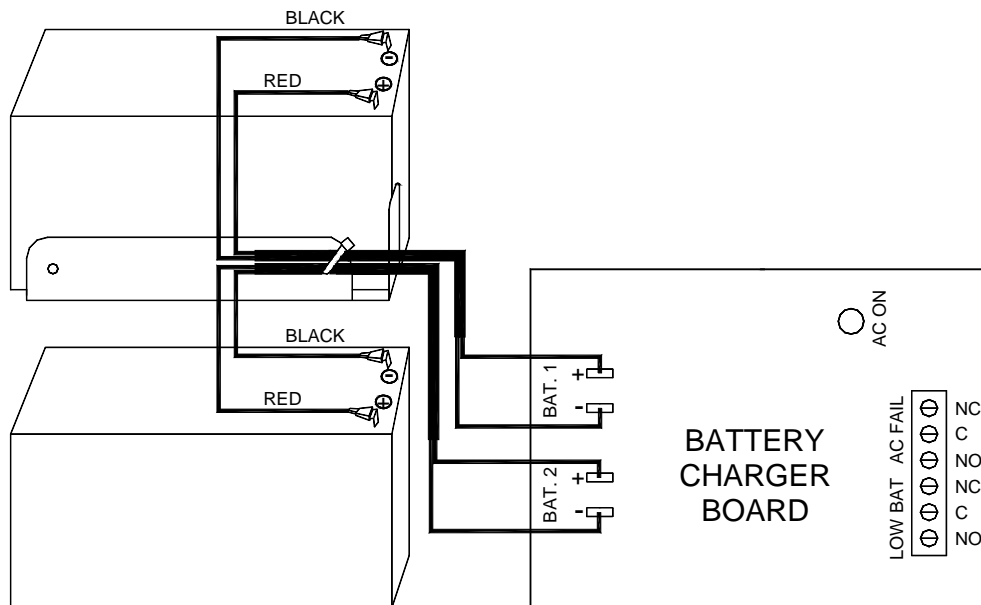
Due to the significantly lower voltage range resulting from the unit running on standby battery power, it is recommended to use load devices with a rated input of 12 – 24 volts DC (or AC/DC).

CAUTION: CHECK WITH THE MANUFACTURER TO MAKE SURE THE LOAD DEVICE WILL OPERATE PROPERLY AND SAFELY WITHIN THE HIGHER VOLTAGE RANGE WHEN THE PS-426BB IS RUNNING ON COMMERCIAL POWER.

STANDBY BATTERY INSTALLATION

Refer to the figure below for connecting the leads from the battery charger p.c. board to the battery terminals. It does not matter which 2-conductor cable with positive/negative leads is connected to either battery.

CAUTION: OBSERVE POLARITY WHEN MAKING CONNECTIONS: RED BATTERY LEADS CONNECT TO BATTERY “+” TERMINALS. BLACK BATTERY LEADS CONNECT TO BATTERY “-“ TERMINALS.



Place one of the two supplied batteries in the lower-left corner of the enclosure. Place the second battery on the shelf above the other battery. Tilt the top of each battery forward to gain access to the terminals. Connect the two pre-assembled 2-conductor cable leads to the battery terminals as shown above.

WARNING! USE DORMA ACC. PART NO. 95061619 REPLACEMENT BATTERIES (UL RECOGNIZED). THESE BATTERIES UNDERGO A SAFE FLOAT CHARGING CYCLE WHILE THE PS-426BB IS OPERATING ON COMMERCIAL POWER, AND CAN BE EXPECTED TO HAVE AN AVERAGE LIFE SPAN OF 5 YEARS.

The batteries are internally connected in series at the battery charger board for 24 volt operation. An onboard, self-resetting PTC protects the batteries during discharge and acts as a secondary backup to the power limited outputs from Terminal Block TB3 of power supply p.c. board 301-56-01.

NOTE: This power supply is UL verified for 4 hours of standby operation under 100% load. Longer standby times can be expected when applying smaller loads, but were not tested by UL.

SUPERVISED OUTPUTS

Two supervised Form “C” outputs are provided for monitoring commercial/battery power status. Contacts are rated 1 Amp @ 28VDC. The contacts shown as “NC” and “NO” in the figure above are what state they will be in when the relays are de-energized.

AC Fail Supervision

With commercial power applied to the PS-426BB, the relay will be energized. A loss of commercial power will de-energize the relay and change state of the contacts to the supervised “AC Fail” position.

Low Battery Supervision

Battery voltage is constantly monitored while batteries are charging and discharging. The supervisory relay remains energized while the battery voltage remains above the cut-off voltage of a full discharge (approx. 21 volts). When the voltage drops to near this value, the relay de-energizes and changes state of the contacts to the supervised “Low Battery” position. It is recommended to consider replacing batteries when a low battery notification occurs.

STATUS INDICATORS

A red indicator, visible from the outside of the PS-426BB enclosure, identifies DC power “ON”. This means that the unit is operating on either commercial or standby battery power. Commercial power can be verified by observing the green “AC ON” indicator located on the battery charger board inside the PS-426BB enclosure. This indicator is turned on when commercial power is applied to the unit.

If the red indicator is turned off, there is no commercial power to the unit, and the batteries are either disconnected from the battery charger board or missing. A lack of battery power will signal a supervised “Low Battery” condition.

TYPICAL PS-426BB APPLICATION

A pair of doors is to be controlled by a computerized time system where it is to be unlatched during business hours from 8:00 AM to 5:00 PM. During this time, a handicapped wall switch located on the exterior and interior sides of the door can be used to activate the automatic door operator.

After business hours, the computer locks the pair of doors and disables use of the exterior handicapped wall switch. The inside wall switch remains enabled after business hours and, when actuated, will momentarily retract the latches and activate the automatic door operator. To gain entry, a card reader located on the exterior side of the door momentarily retracts the latches and simultaneously enables the outside wall switch to be activated by the handicapped.

Refer to the wiring diagrams section for selecting an application that suits the project requirements.

TROUBLESHOOTING

Before proceeding through the troubleshooting section, ensure that all device latches are not binding against their corresponding strikes. A bound latch can cause sluggish electric retraction or prevent retraction entirely.

Power Limited Outputs

All outputs to the PS-426BB are power limited. Depending on the output, if a short circuit or an over load condition should occur; the output will either shut off entirely or go into a safe current limiting state.

IMPORTANT!: THE MAXIMUM RATED LOAD FOR ALL OUTPUTS COMBINED IS 1.95 AMPS, INCLUDING 200mA (MAX.) FOR THE AUXILIARY OUTPUT.

The outputs to ESB Device One (TB3, terminals 5 & 6) and ESB Device Two (TB3, terminals 11 & 12) will completely shut down to 0 volts when a short circuit across the output occurs or when the load exceeds 5 amps. To reset the output, the short circuit or overload must first be located and removed. Next, momentarily switch off the outputs by opening the contacts across input terminals 1 & 2 or 7 & 8, whichever is used. Before switching outputs back on, ensure the load does not exceed the maximum current ratings.

The auxiliary output will go into a current limiting state if the load applied across it exceeds approximately 2.0 amps or in the event of a short circuit. The current is reduced to a safe level when either of these conditions occur. The output voltage will automatically return to its normal level when the short circuit or overload condition is removed and replaced by a load falling under the maximum current rating.

Symptom:

Neither DEVICE ONE nor DEVICE TWO retracts after the control switch is activated

Possible Causes:

1. The power limited output to Device 1 or Device 2 (or both) may have shut down. When this happens, the field wires that are run to the exit device are probably shorted together against the conduit, door frame or electric hinge.
2. An open connection in the field wiring between the power supply and control switch used for activating latch retraction.
3. A defective control switch.

4. An open connection in the field wiring between the power supply and exit device.
5. There may be no pulse. To check for pulses, prop the door open and connect a voltmeter across the blue leads of ESB device. Next, connect a jumper wire across terminals 1 and 2 of TB3 to keep DEVICE ONE in a continuous retracted state. If the voltmeter measures between 30 and 40 VDC at the moment the jumper wire was installed, but the latch did not budge, then no initial pulse was generated.

Symptom:

When 120 volts is applied to TB1, the exit devices will momentarily retract; but if they remain retracted for longer than 20 seconds, then it signals a problem.

Possible Causes:

1. Field wiring between the power supply and control switch are shorted together against the conduit or switch mounting box.
2. A maintain switch is being used and is in the closed position.
3. A defective control switch.

**For Service or Technical Support, call DORMA Architectural Hardware Inc.
(800) 523-8483.**

NOTE 1: THIS UNIT IS LISTED AS AN EXIT DEVICE CONTROL UNIT TO UL294 REQUIREMENTS.

NOTE 2: THE POWER OUTPUT OF THE CONTROLLER IS OF A FAIL SECURE DESIGN. THE EXIT DEVICE REMAINS LATCHED DURING A COMPLETE POWER FAILURE, BUT ALWAYS ALLOWS FREE MECHANICAL EGRESS. LISTED PANIC HARDWARE MAY BE REQUIRED TO ALLOW EMERGENCY EXIT. CONSULT LOCAL AUTHORITY HAVING JURISDICTION.

PS-426BB WIRING DIAGRAMS FOR VARIOUS SINGLE DOOR AND PAIR DOOR APPLICATIONS

Note: The application wiring diagrams apply to both the PS-426 power supplies using Series ES exit devices and PS-426BB power supplies using Series ESB exit devices

Riser diagrams for typical single door and pair door system configurations have been included.

All wiring diagrams are divided into two main categories for selection of day/night mode control: applications using maintain action key switch w/status indicators and applications involving interface with a remote output, such as a time clock or computer.

For each door type and method of selection category there are four variations of point-to-point wiring diagrams. All variations involve different ways in which the exterior card reader, exterior wall switch and interior wall switch can be used in conjunction with the electrified exit device(s) and automatic door operator when selected for night mode of operation. Below is a brief description describing each variation.

- Variation 1: Pressing inside wall switch will cause latch(es) to retract and activate automatic opening of door. Outside wall switch is disabled. Activating card reader will enable outside wall switch to retract latch(es) and activate automatic opening of door.
- Variation 2: Pressing inside wall switch will cause latch(es) to retract and activate automatic opening of door. Outside wall switch is disabled. Activating card reader will retract latch(es) and enable outside wall switch to activate auto operator when pressed.
- Variation 3: Pressing inside wall switch will cause latch(es) to retract and activate automatic opening of door. Outside wall switch is disabled. Activating card reader will retract latch(es) and activate auto operator.
- Variation 4: Both inside and outside wall switches are disabled. Activating card reader will retract latch(es) only. Door must be pulled open manually for entry; pushed open manually to exit.

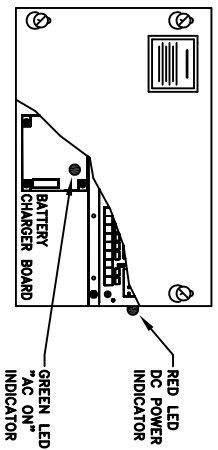
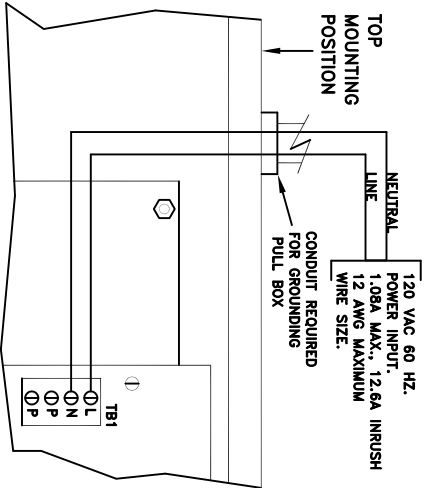
A more detailed description of system operation for each variation can be found on the point-to-point wiring diagrams to follow.

GENERAL WIRING DIAGRAM
 DORMA PS-426BB
 ELECTRIC LATCH RETRACTION
 CONTROLLER
 USE INSTALLATION INSTRUCTIONS
 PART NO. 95061341

CLASS 2 OUTPUTS



ACCESS CONTROL POWER SUPPLY ACCESS CONTROL
 ELECTRIC LATCH RETRACTION (ELR) CONTROLLER



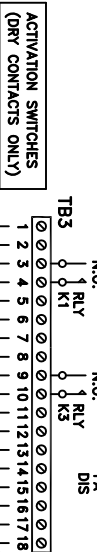
CONTROLLER INTENDED
 FOR INDOOR USE ONLY.

USED FOR ADJUSTING UNLOCK DELAY TIME WHEN USING A
 R2 MOMENTARY ACTION SWITCH FOR SW. 1, R2 ADJUSTS DEV.
 1 (SINGLE DOOR) OR DEV. 1 & DEV. 2 (PAIR DOORS) TIME
 DELAY, 8 SEC. MAX. DELAY TIME. R4 IS NOT USED WITH
 THE MODEL PS-426BB LATCH RETRACTION CONTROLLER.

MFG. DATE:

S DEVICE ACTIVATION MODE SELECTOR
 JUMPER MUST REMAIN IN "S" POSITION.
 DO NOT MOVE JUMPER TO "D" POSITION.

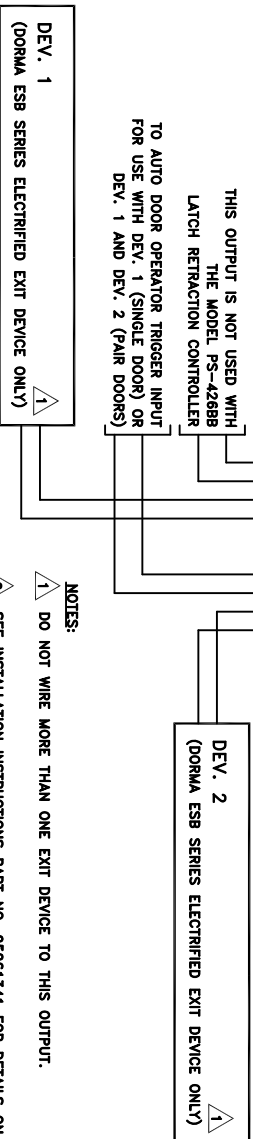
FA FIRE ALARM INPUT ENABLE/DISABLE SELECTOR
 DEFAULT POSITION SHOWN WHEN FIRE ALARM
 IS NOT USED. TO ENABLE INPUT FOR FIRE ALARM
 INTERFACE, MOVE JUMPER TO "FA EN" POSITION.



CLOSING SW. 1 ACTIVATES DEV. 1 (SINGLE DOOR), OR
 DEV. 1 AND DEV. 2 (PAIR DOORS), FOLLOWED BY
 ACTIVATION OF AUTO DOOR OPERATOR. (MOMENTARY
 SWITCH NORMALLY USED WITH THIS INPUT.)
 CLOSING SW. 2 ACTIVATES DEV. 1 (SINGLE DOOR), OR
 DEV. 1 AND DEV. 2 (PAIR DOORS), WITHOUT ACTIVATING
 AUTO DOOR OPERATOR. (MAINTAIN SWITCH NORMALLY
 USED WITH THIS INPUT). NOTE: SW. 1 CAN BE USED TO
 MOMENTARILY ACTIVATE AUTO DOOR OPERATOR WHILE
 LATCHES ARE CURRENTLY HELD RETRACTED BY SW. 2.

THIS OUTPUT IS NOT USED WITH
 THE MODEL PS-426BB
 LATCH RETRACTION CONTROLLER
 TO AUTO DOOR OPERATOR TRIGGER INPUT
 FOR USE WITH DEV. 1 (SINGLE DOOR) OR
 DEV. 1 AND DEV. 2 (PAIR DOORS)

AUXILIARY DC POWER LIMITED OUTPUT (200mA MAX.):
 26.1V - 27.2V NOMINAL (COMMERCIAL POWER APPLIED) **2**
 15.4V - 22.5V, STANDBY BATTERY POWER (95% OF NOMINAL TO FULL CHARGE)



- NOTES:
- 1** DO NOT WIRE MORE THAN ONE EXIT DEVICE TO THIS OUTPUT.
 - 2** SEE INSTALLATION INSTRUCTIONS PART NO. 95061341 FOR DETAILS ON BATTERY INSTALLATION, REPLACEMENT AND AVAILABLE SUPERVISORY OUTPUTS.

FOR SERVICE OR TECHNICAL SUPPORT,
 CONTACT DORMA ARCHITECTURAL HARDWARE
 (800) 523-8483

