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distributors of **ANSI** grade & **CE** marked commercial door hardware

PS0 EL.N 24Vdc 2A & 26.7Vdc 0.3A Power Supply - Installation Instructions

INSTALLATION WARNING – This equipment MUST BE EARTHED and supplied from a switched fused 3A spur on 30mA RCD mains protection. The enclosure must be fixed internally on a vertical flat surface (unit weighs 4.3kg w/out batteries) at a maximum ambient temperature of 45°C in a well ventilated area. This power supply must be installed in accordance with the Wiring Regulations BS7671. Installation by qualified personnel, precluding use by persons (including children) with reduced physical, sensory/mental capabilities and those with a lack of experience and knowledge. If the supply cord is damaged it must be replaced by the manufacturer, their service agent or similarly qualified persons in order to avoid a hazard.

230V 50Hz 1A supply

WARNING - DISCONNECT FROM MAINS SUPPLY BEFORE CARRYING OUT ANY WORK

Features:

- Over voltage protection
- Short circuit protection on outputs
- Battery charging regulation
- Mains failure, low battery and field relay state (user selectable)
- Relay warning terminal outputs MF/LB/FR NO or NC for BMS or similar
- Externally visible 3 LED status indicators: Mains, DC and Field Relay status
- PCB mounted engineering status LED indicators, show:
 - Warning relay energized (jumper selectable)
- Battery management electronics provides:
 - Low voltage trip to disconnect battery and extend battery life
 - Reverse battery polarity protection

Description

This power supply is designed to provide Von Duprin electric latch retraction exit devices (1:1) and 24Vdc rated solenoids and strikes with unregulated 24Vdc 2A (at 16A for 300ms). A regulated circuit charges batteries (if fitted) at a float voltage of 27.6Vdc 1A.

First Stage Current Protection

If the load exceeds the power supply current rating, an electronic sensor folds the voltage back to 23.0 volts and provides current limiting.

Second Stage Current Protection

A short circuit or severe overload will shut down the regulator and the output voltage will be zero until the fault is removed.

Battery Management (with batteries fitted)

Under normal conditions, the batteries float at 27.6 Volts under charging. If the mains power fails the batteries take the load. If the voltage drops below 21 volts the regulator and a relay disconnects the batteries. This feature extends battery life by preventing deep discharging and prevents equipment malfunction.

User Selectable Voltage Free Warning Relay - terminals WC WNO WNC rated 1.0 Amp

The electronic voltage detection circuit is configured by selecting the handbag jumper on the PCB. The relay will trigger as set: **FR** – Field relay, **MF** - Mains failure or **LB** - Low battery (23volts).

Output Terminals +NO or +NC switchable to the device

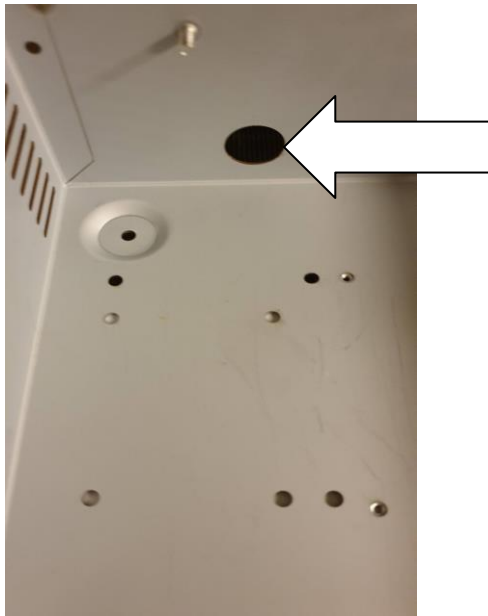
When terminals FR & FR (Field relay) are linked to a voltage free contact and/or access control system, the output +NO will change over to +NC. Relay operation is indicated via the external yellow LED. The positive output is from either +NC (normally closed) or +NO (normally open) to the device depending on the state of FR FR.

Cabinet dimensions in mm 325H * 255W * 90D | Weight 4.3kg (all 4 fixing holes to be used)

Fixing Holes - There are four fixing holes - one at each corner of the cabinet. All four are to be secured to a vertical platform (the unit is 4.3kg without batteries).

Gland Knockouts -The cabinet has laser cut, easy pop 20mm gland holes for 20mm compression glands:

Top location



Lower left side location



Commissioning Test

Prerequisites:

- Disconnect batteries (if fitted)
- Disconnect all supplied equipment
- Place the handbag link to LB low battery (on PCB)

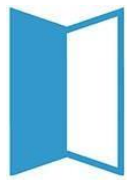
Test Procedure

Switch on mains power; the following indicators should be illuminated:

- Red and Green – on the front panel
- Yellow on the PCB

Field Relay

Switch off mains power & connect a link between terminals FR & FR
Switch on mains power – the yellow LED on front panel should now be lit
Connect a meter between terminals 0V & +NO - this should be 27Vdc
Switch off mains power & remove the link between terminals FR & FR
Switch on mains power - terminals 0V & +NC – this should be 27Vdc
The above test proves the operation of the output change-over relay contacts +NO/+NC



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Battery Functionality (Optional) – Only if Fitted

Switch off the mains power and connect the batteries. Place the handbag link to MF (mains failure), switch on the mains power, then switch off. The power supply is now running on the batteries. Note the yellow LED on the PCB will be off but the green LED on the front panel will be on. The relay contacts WNO to WNC will change over.

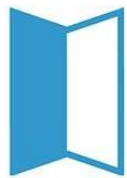
Tests with the Load Connected - Batteries not connected

With the load connected, switch on the mains supply. The following LEDs will illuminate on the front panel: Red, Green and Yellow (if using FR FR terminals).

If only the red LED is illuminated there is a short circuit with the load connected. If the connected load has exceeded the power supply rated output, it must be reduced. Check the fuses if only the red LED is illuminated

Front panel LED	PCB LED	Means
Red + Green	None	Normal operation
Red + Green + Yellow	None	Normal operation with field relay energized
Green	Yellow if MFW *	Power supply on battery
Green + Yellow	Yellow if MFW *	Power supply on battery with field relay energized
Red only	None	Dead short on output

* MFW – mains failure warning if configured



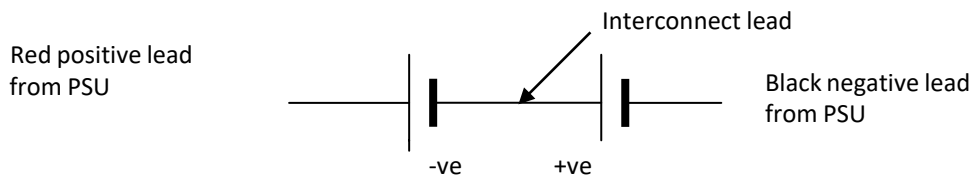
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Battery Connection -

NB - Batteries MUST be used for ALL 2 point & 3 point Von Duprin Electric Latch Retraction Devices

With the power supply switched off, connect 2 off 4A/hr (or 7A/hr) batteries in series (to provide 24Vdc) using the black interconnecting lead as shown below:



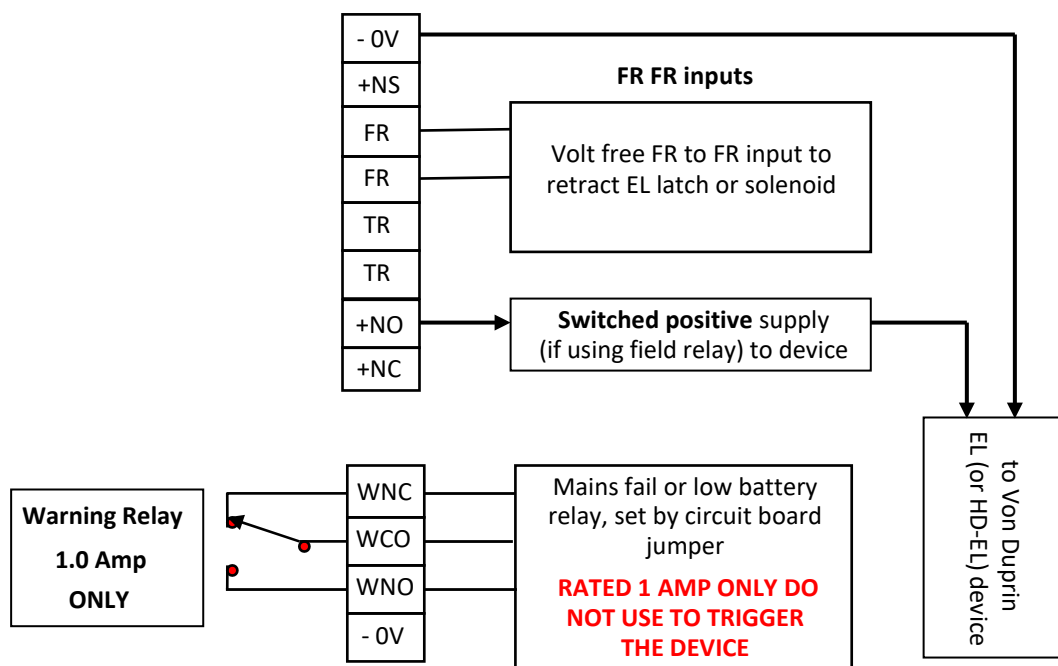
Von Duprin Electric Latch Retraction Device - Connections

All Von Duprin EL (or HD-EL) devices are non-polarity sensitive & require a current of 16 Amps for 300ms to operate the latch electrically. This needs to be connected to 0V & either +NO or +NC for field relay switching - please check for local system requirements. Always ensure the device is connected with cable capable of carrying the initial surge current of 16 Amps.

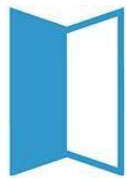
Power Supply Connections -

Please note:

- FR FR is volt free input - either a timer contact or latching contact
- The BMS monitoring connects to WNO or WNC with WCO (common)
- The change-over output +NO/+NC switches on the FR FR removal
- Positive and negative (switched) supplied from +NC/+NO & 0V to the device
- If a constant output is required use +NS (non-switched) and 0V



Relays shown in de-energized state



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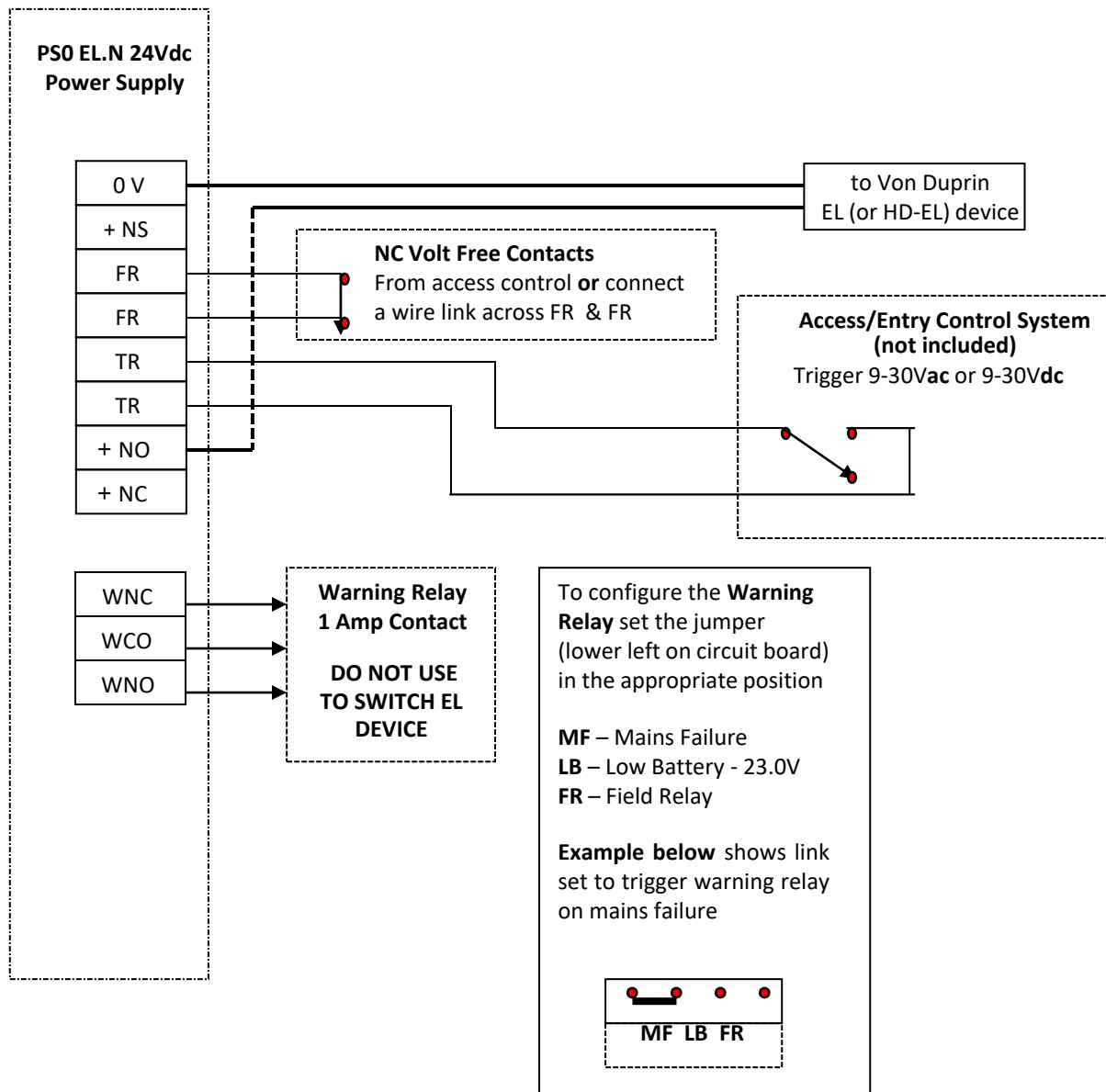
Von Duprin Electric Latch Device supplied by PS0 EL.N - Trigger by Access Control System

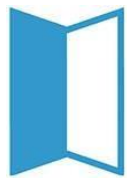
The supply is not regulated - access control devices and associated swipe card readers etc. may require a separate supply.

In this example connection diagram:

- Von Duprin EL (or HD-EL) connected to terminals **0V** & **+NO** - not polarity sensitive
- Connect a wire link or normally closed building management system switch to terminals **FR** & **FR**
- Connect a trigger voltage - such as access control system or entry phone of 9-30Vac or 9-30Vdc to terminals **TR** & **TR** - not polarity sensitive

This is a sample diagram only - actual installations may be different.





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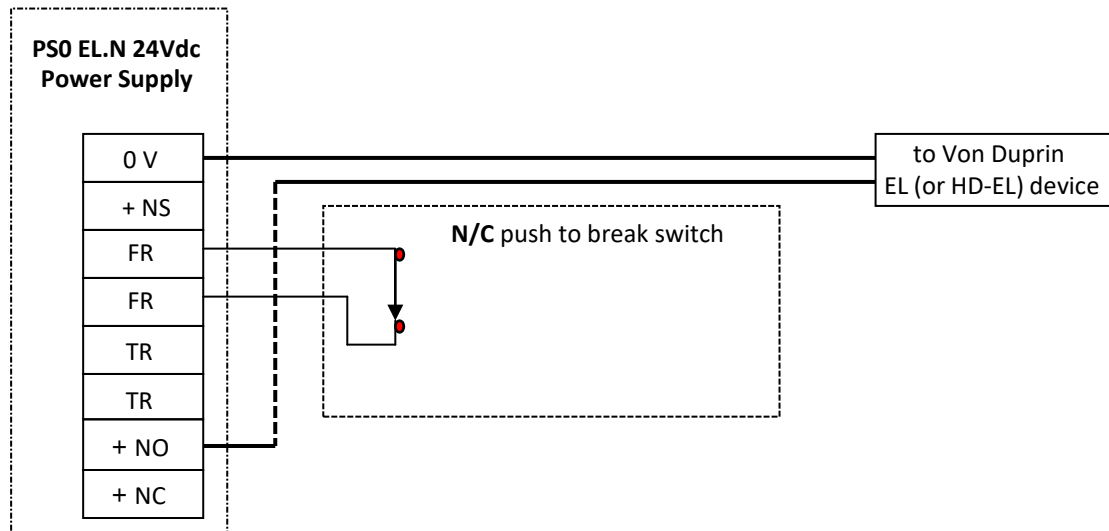
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Von Duprin Electric Latch Device supplied by PS0 EL.N - Simple Trigger Circuit

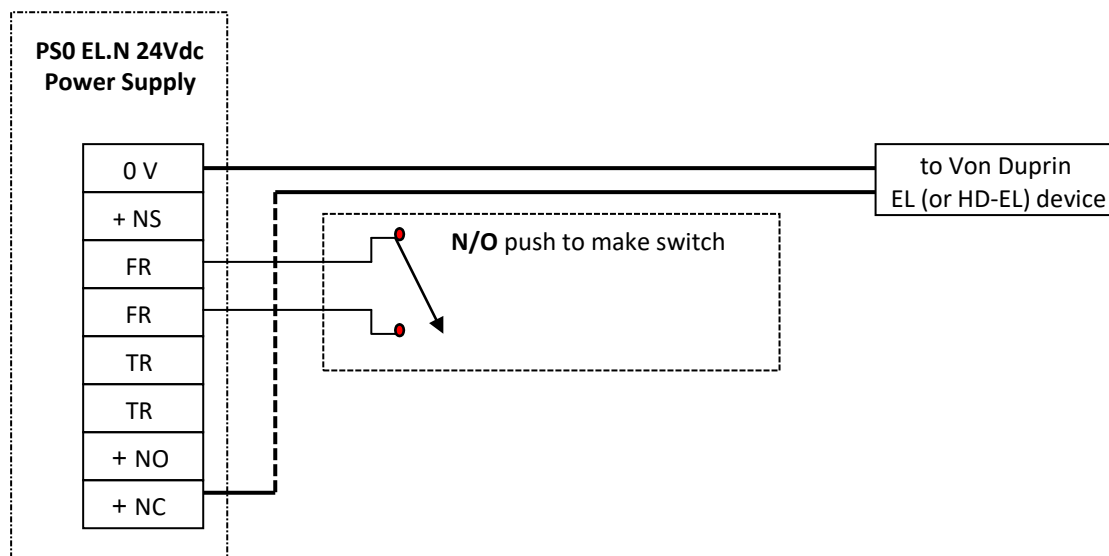
Connection Diagram:

- Von Duprin EL (or HD-EL) connected to terminals 0V & +NO - not polarity sensitive
- Connect a N/C or N/O push to break or make switch to terminals **FR & FR**

These are sample diagrams only - actual installations may be different.



Or with a push to make switch, connect EL device between 0V & + NC



Cable Selection

The Von Duprin EL (or HD-EL) device draws a current at 16A for 300ms

Solid core cable, network or building alarm cable MUST NOT BE USED

We recommend connecting EL (or HD-EL) devices (1:1) to this power supply with a multi-stranded cable of **at least** 1.5mm for runs <3 metres and 2.5mm for runs <5 metres. For longer cable runs voltage drop calculations for a 400W surge must be carried out.