



**DYCON**  
power solutions

# Installation Manual for D155X Series of 12V Switched Mode Power Supply for Access Control

<b>D155X Series Part Numbers</b>	
<b>D1551-A</b>	<b>1A – 12 volts in A box</b>
<b>D1551-B</b>	<b>1A – 12 volts in B box</b>
<b>D1551-P</b>	<b>1A – 12 volts – PCB only</b>
<b>D1553-B</b>	<b>3A – 12 volts in B box</b>
<b>D1553-C</b>	<b>3A – 12 volts in C box</b>
<b>D1553-P</b>	<b>3A – 12 volts – PCB only</b>
<b>D1555-B</b>	<b>5A – 12 volts in B box</b>
<b>D1555-C</b>	<b>5A – 12 volts in C box</b>
<b>D1555-P</b>	<b>5A – 12 volts – PCB only</b>

Dycon Power Solutions Ltd  
Tel: +44 (0)1443 471 900  
Unit A - Cwm Cynon Business Park – Mountain Ash – CF45 4ER - UK

[www.dyconpower.com](http://www.dyconpower.com) - [sales@dyconpower.com](mailto:sales@dyconpower.com)

## Overview

The Dycon D155X Series of power supplies are switched mode power supplies with a normally closed voltage-free output for signalling status and serviceability of the unit with a box mounted status display.

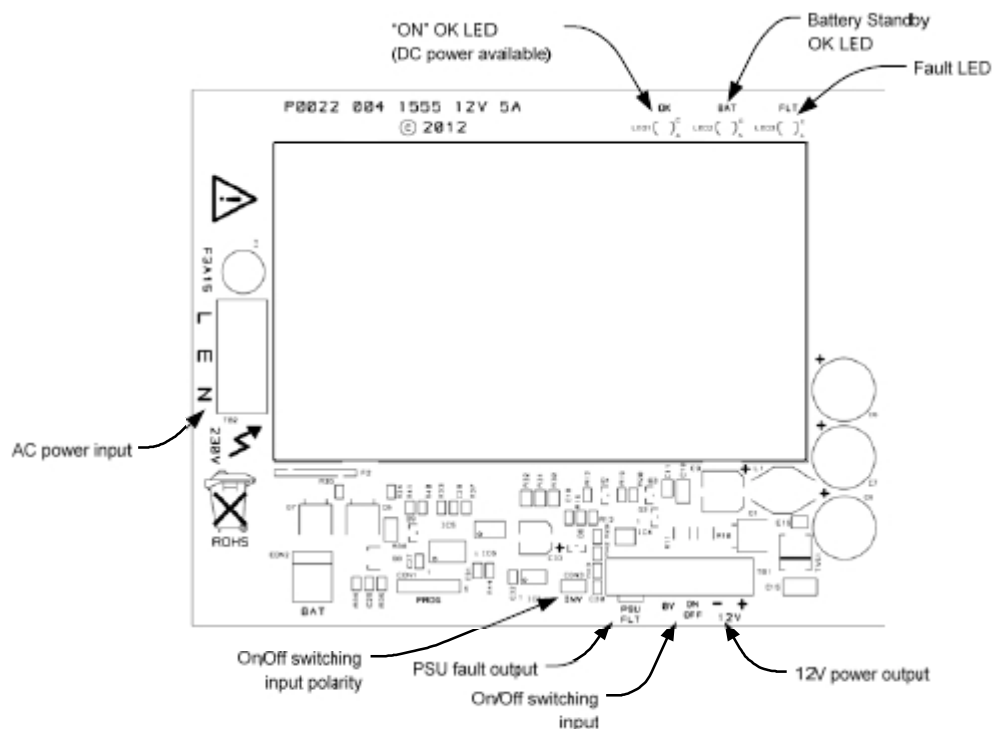
The power supplies all provide a nominal 12V when powered from a 230V AC supply with battery backup.

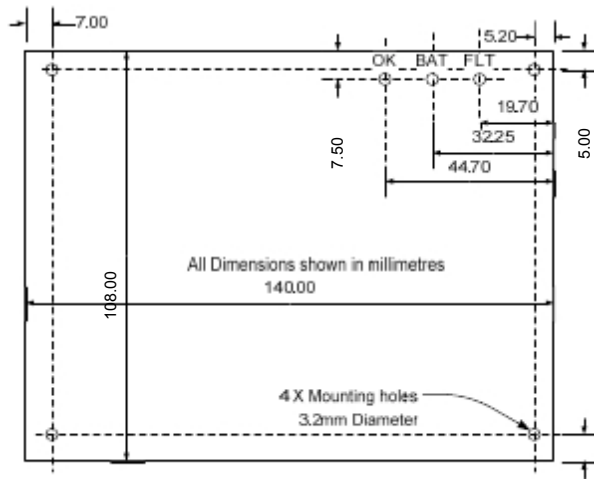
The power supplies have the following features:

- On/Off power switching control input with pull-up, compatible with voltage-free contacts
- Jumper for selecting inverted or normal power switching input operation
- ON (OK) LED display indicating normal operation and On/Off switching status
- Battery LED indicating standby operation and On/Off switching status
- Fault LED and separate fault relay output for comprehensive fault monitoring
- Battery connection monitoring
- Battery deep discharge protection
- Inductive and capacitive load switching surge protection and snubbing
- Electronic overload protection with automatic reset
- Highly efficient power conversion – better than 84% at full load
- Low voltage drop when in standby mode

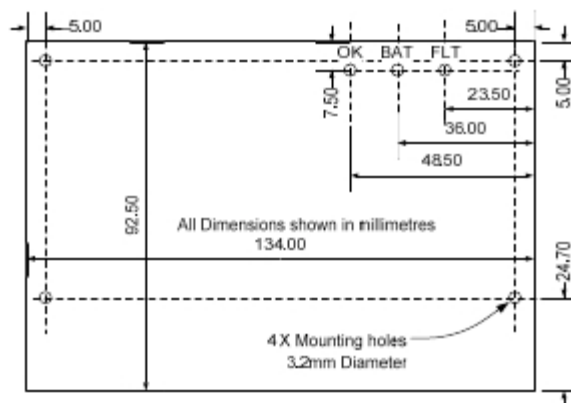
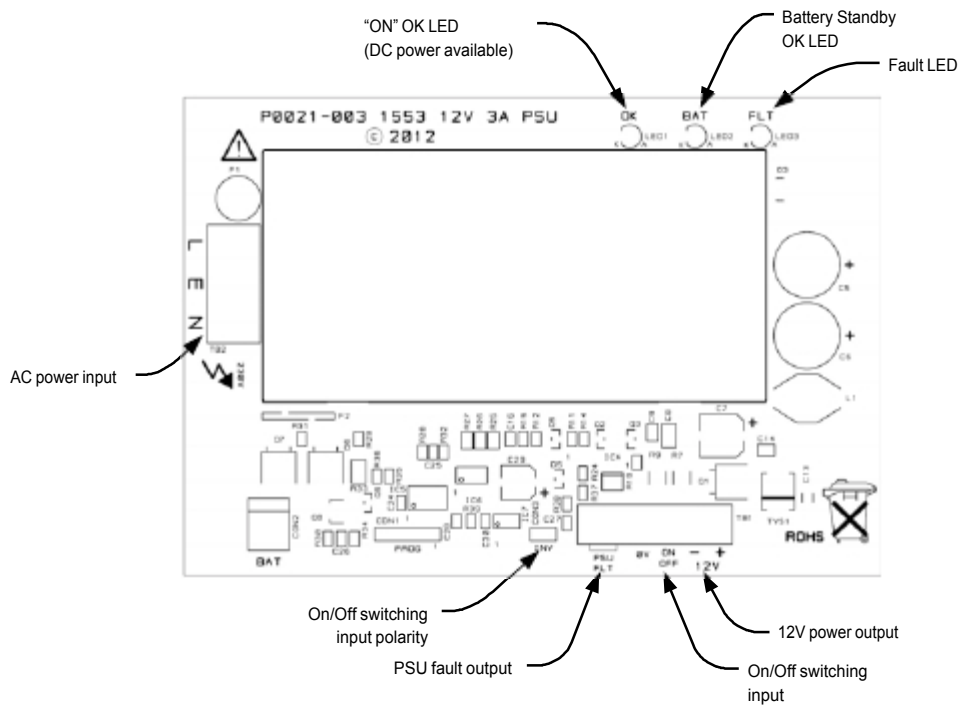
The switched output is designed for highly inductive loads such as access control door strikes and locks and is protected from high voltage back-EMF spikes.

## Layout D1555

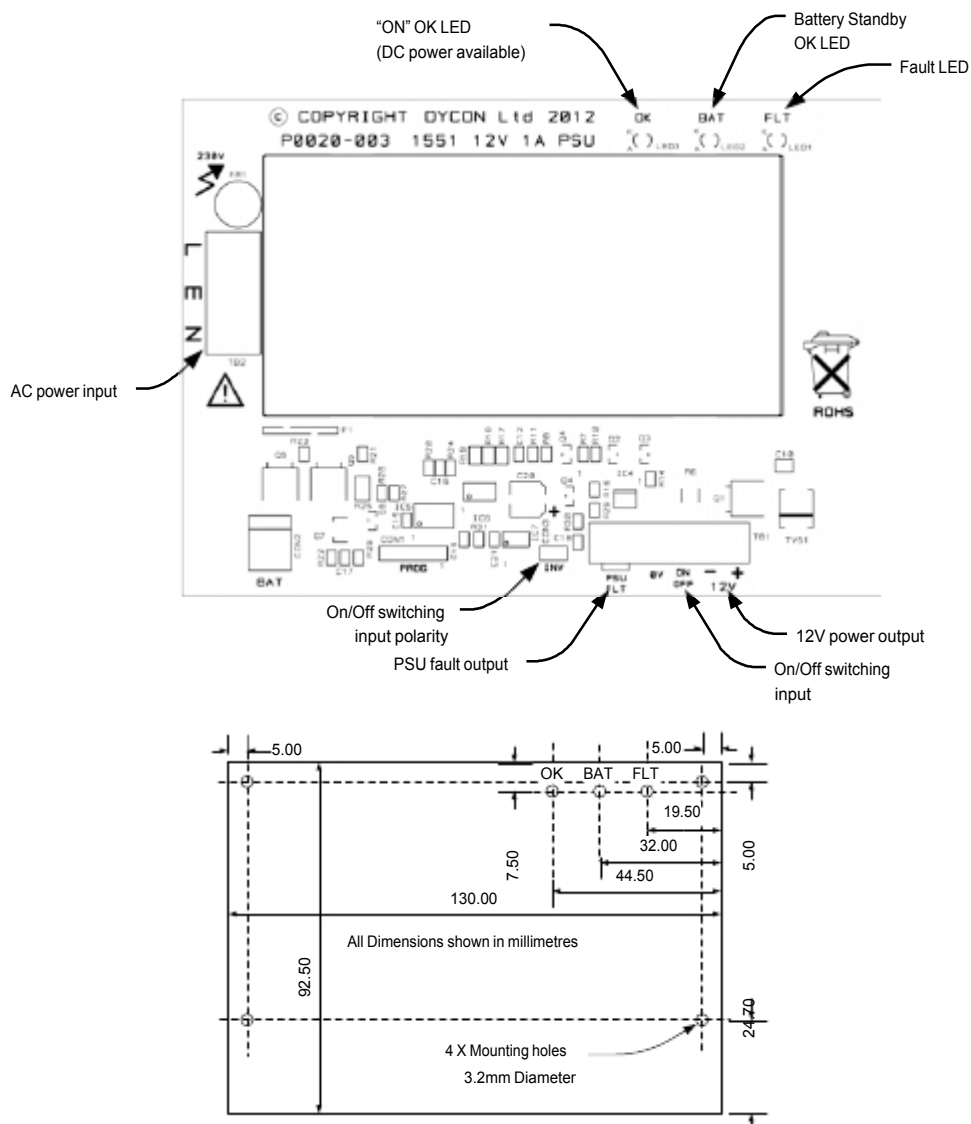




**Layout D1553**



## Layout D1551



### Installation

Mount the metal enclosure onto the wall.

Connect the Live, Earth and Neutral terminals to an un-switched fused spur.

Connect the On/Off switching control to the control unit. Select the mode of operation using the jumper (see below).

Connect the Normally Closed relay output to the monitoring equipment used to report and signal equipment faults.

Connect the 12V power output to the system.

Switch on the AC supply and confirm that the AC OK LED is lit.

### External Power Supply (AC Supply)

The power supply has a three-way terminal block for Live, Earth and Neutral connections. When supplied boxed, earth is connected to the metal enclosure and the lid earthed with a flying push-fit lead.

## 12V Power Output

Terminal blocks are provided to connect to the system. The output is floating and can be referenced to earth if required. The output is controlled by the ON/OFF input (see below).

The output is electronically short circuit and overload protected and suitable for switching highly inductive loads. The short circuit protection is intelligent and power will be restored when a short is removed when still connected to the load, requiring no further user/installer intervention. The output switch-on retry time is adaptive and will be extended to a maximum of 18 seconds after a long duration short to prevent excessive switch power dissipation.

The PSU power rail is continuously monitored for over-voltage and in the event of a high voltage condition, the output will be automatically switched off and a fault signalled

## LED Display

The status of the PSU is displayed by three LEDs, see below for their meaning:

### KEY

- LED on
- LED off
- ☼ LED blinking

State	OK LED GREEN	BAT LED YELLOW	FLT LED RED
AC On	●	○	○
AC Off	○	●	○
Output Off, AC On	☼	○	○
Output Off, AC Off	○	☼	○
Output Fault ,AC On	●	○	●
Output Fault, AC Off	○	●	●
Battery Fault, AC On	●	●	●
Low Battery Fault, AC Off	○	●	●
Output Off, AC On, Battery Fault	☼	☼	●
Output Off, AC On, Output Fault Pending	☼	○	●
Output Off, AC Off, Output Fault Pending	○	☼	●
Output Off, AC Off, Low Battery Fault	○	☼	●
Output On, AC ON, Over Voltage Fault	●	○	●
Output Off, AC ON, Over Voltage Fault	☼	○	●

## PSU Fault

The PSU normally closed fault relay contacts will open with the following fault conditions:

- Thermal shutdown due to overload
- Switch mode low-voltage output power fault
- Switch mode over-voltage output power fault
- 12V output either shorted or overloaded
- Battery disconnected fault
- Low battery voltage fault

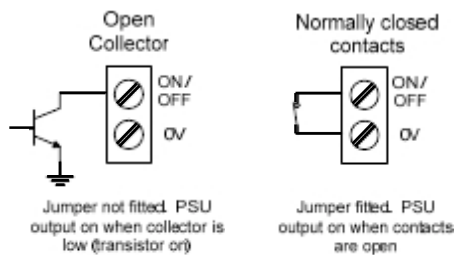
The relay contacts are voltage-free and floating. The PSU fault relay status will not be changed when the output is switched on or off using the ON/OFF input.

## ON/OFF Input

This input is 30V tolerant and 5V logic compatible. It has an internal 100K resistor pull-up connected to 5V and is designed to work with 5V logic outputs, NO and NC voltage-free contacts and open collector outputs.

If the ON/OFF input is left unconnected when the jumper is not fitted, the power supply will be switched on.

Switching examples are shown below:



## Battery Management

The battery is continuously monitored for connection and the charging output has reverse polarity and safe-area current-limit protection. The battery has deep discharge cut-out protection when operating in standby mode. The charging output uses constant current charging to reduce recharging times.

## Maintenance

There are no serviceable parts or fuses. No maintenance is required other than routine periodic testing.

**Please note that high voltage is present under the cage – handle with care. Do NOT touch. Do NOT remove the cage.**

## Specifications

Power supply	Type A, Ungraded, Environmental Class 2
Voltage input	195VAC – 265VAC at 50 – 60Hz
AC input current	D1551 – 200mA, D1553 – 400mA, D1555 – 600mA
AC input fuse	D1551 – 1A, D1553 – 2A, D1555 – 3A
Output voltage with AC power	Maximum 13.9V, minimum 13.5V
Output ripple	Less than 0.25V peak to peak at full rated output
Maximum output current at full load	D1551 – 1A, D1553 – 3A, D1555 – 5A
Battery charging current and voltage	300mA maximum at 13.7V float charge voltage
Minimum standby output voltage	9.6V
Maximum Power input at full load	D1551- 23W, 38VA: D1553 – 50W, 94VA: D1555 – 90W, 150VA
Fault Relay rating	60V at 100mA, 14ohms closed
Power Factor	0.6
Maximum overvoltage cut-out	14.5V ±3%
Low battery fault	11V ±3%
low-voltage power output fault	12.3V ±3%
Battery deep discharge voltage limit	10V ±3%
Automatic output reset time <sup>1</sup>	10ms to 18s
Operating temperate range	-10°C to +40°C
Humidity	95% non-condensing

## NOTE

1. Depending on nature and duration of the output fault.

## Sizes and Weights

	D1555 PCB	D1553 PCB	D1551 PCB	A box	B box	C box
Size (H x W x D mm)	140 x 108 x 46	134 x 92.5 x 38	130 x 92.5 x 38	235 x 170 x 85	260 x 320 x 87	400 x 420 x 87
Weight (kg)	0.236	0.152	0.130	2.0	3.2	4.3

In case of problems, telephone Dycon Technical Support on +44 (0)1443 471 900  
or email [technical@dyconpower.com](mailto:technical@dyconpower.com).