

## PS21 Range of Power Supply Units

The Davis Derby Minewatch PS21 range high capacity intrinsically safe 12v dc power supplies provide simple robust solutions for the supply of intrinsically safe controllers and sensors.



The Minewatch PS21 range of power supplies are available in 3 versions all are capable of supplying 12vdc 700mA max output.

- Minewatch PS21** Flameproof/intrinsically safe power supply with 120/220v ac input (other input voltages available)
- Minewatch PS21-R** As Minewatch PS21 but including 6 intrinsically safe to flameproof interposing relays for the control of mining flameproof switchgear
- Minewatch PS21-B** As Minewatch PS21 but including an 8A/Hr battery pack to create an uninterruptible power supply unit

### Construction

The main transformer and relays (Minewatch PC21-R) are housed inside a cast steel flameproof enclosure with 6 FLP entries for supply and control cables. The Minewatch PS21-B also includes a sheet steel intrinsically safe battery enclosure. All variants have a sheet steel intrinsically safe terminal chamber for connecting the 12vdc to intrinsically safe controllers and/or sensors; alternatively, the Minewatch PS21 can be directly mounted to a Minewatch PC21 intrinsically safe controller to provide a composite unit.

### Operating Principles

The 12vdc output is regulated to maintain the output voltage to a minimum of 11.5v up to the full load capacity of 700mA.

The Minewatch PS21-B will maintain this output at full load for an 8 hour period. The Minewatch PS21-B also contains an intrinsically safe opto output to indicate to the intrinsically safe controller when the power supply has changed from mains to battery.

In the case of the Minewatch PS21-R, up to 6 FLP control relays can be operated by an intrinsically safe controller (such as a Minewatch PC21) and interlock to FLP control circuits.

## Specification

Mains input voltage	120/220Volts ac; 36/127Volts ac; 660Volts ac; +10% -25% 50Hz
Intrinsically safe output voltage (Mains Operation)	11.5 Volts dc (minimum) @ I out = 700mA 13.65 Volts dc (maximum)
Intrinsically safe output voltage (Battery Operation)*	11.5 Volts dc (minimum) @ I out = 700mA 13.65 Volts dc (maximum)
Intrinsically safe output current (Mains Operation)	Up to 700mA dc (normal operation) 3.52A dc (maximum under fault conditions)
Intrinsically safe output current (Battery Operation)*	Up to 700mA dc (normal operation) 3.52A dc (maximum under fault conditions)
Battery capacity*	8 Ampere hour (Cyclon Valve Regulated Sealed Lead Acid (VRLA) cells) 8 hours of operation @ I out = 700mA
Battery Charging Current*	Typically 250mA
Battery Charging Time* Flat Batteries to Full Charge	Typically 40 hours (with 1Amp load)
Dimensions	
Minewatch PS21 & PS21-R	390 mm wide x 195 mm deep x 240 mm high
Minewatch PS21-B	390 mm wide x 195 mm deep x 385 mm high
Weight	
Minewatch PS21 & PS21-R	30kg
Minewatch PS21-B	40kg

## Cable entries

The Unit is supplied with 1 x 20mm FLP spigot gland and 5 x FLP spigot blanks (up to 6 FLP spigot glands may be fitted) and 1 x 20mm intrinsically safe gland (for 12vdc output) and 1 x 20mm intrinsically safe blank.

Minewatch PS21-R variant: when mounted directly to a Minewatch PC21 controller, a through adaptor plate is fitted instead of the intrinsically safe terminal chamber to accommodate the through connection of the 12vdc supply and control relays.

## Certification

The Minewatch PS21 range is certified EEx d (ia) to the European ATEX standards for Group I coal mines (ATEX M2, M1 output) and also holds Russian and Kazakhstan mining approvals.