

# DEADMAN AND FILTER DIFFERENTIAL PRESSURE PROTECTION SYSTEM

♦ **DEADMAN AND FILTER DIFFERENTIAL PRESSURE PROTECTION IN ONE SYSTEM**

♦ **DEADMAN ONLY, OR FILTER DIFFERENTIAL PRESSURE PROTECTION ONLY, OR BOTH**

♦ **DEADMAN SHUT DOWN WHEN HIGH**

## Background

A number of Deadman systems and separate filter Differential Pressure (DP) protection systems are available. However, our system incorporates both functions, so it can either be used as a Deadman system, or a DP protection system, or a combined Deadman and DP protection system.

The need for automatic DP correction is the subject of debate, but it is accepted that the operator cannot consistently monitor the filter DP during a refuelling operation. After the onset of filter blocking the filter elements can continue to block very quickly, causing a rapid rise in the filter DP with little or no warning. When this occurs it is unlikely that the operator will be close enough to the DP Gauge to see the rise in DP and take action to shut the system down sufficiently quickly. Also, after a rise in filter DP the operator can 'cheat' the system and reduce the DP by reducing the system flow rate. This is a very dangerous practice because although it reduces the filter DP, the elements themselves are blocked and the risk of element rupture will remain.

Although filter DP Switches are available, until now little consideration has been given to using the output from the DP Switch in the optimal manner. Also, new vehicles can be fitted with a system relatively easily, but retro-fit to existing vehicles on site is not so easy, and if this task is carried out with insufficient consideration then it is possible that the final result may not be satisfactory. It is also likely that there will be no standard operating mode if there is a mix of converted and new

**FILTER DIFFERENTIAL PRESSURE OCCURS**

♦ **DEADMAN TIMER**

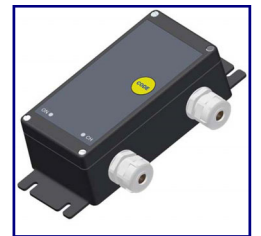
♦ **EASY TO INSTALL AND OPERATE**

♦ **OPERATIONAL STANDARDISATION FOR NEW AND EXISTING VEHICLES**

vehicles at a location, and this could lead to confusion among the operators.

## The Aljac Deadman and DP Protection System

Our system has been designed for operation as a combined DP Protection and Deadman System, or a Deadman System, or a DP Protection System which can be easily retro fitted alongside any existing Deadman System. So connecting a Deadman Switch gives Deadman only, connecting a DP switch gives DP protection only and connecting a Deadman Switch and DP Switch gives Deadman and DP protection (see schematic diagram).



## Deadman System Features

**Full Operational Control.** Remote control of the refuelling operation with a Deadman Handswitch and coiled Suzie Cable.

**Time Out.** Warning every 1.1/2 minutes (optional 2 minutes), times out and closes down the Deadman System unless the Deadman Handswitch is released and immediately reactivated within 30 seconds. This prevents system abuse by jamming the Deadman Handswitch closed.

**Deadman Warning Lamp Output.** Lamp 'On' when the Deadman System is activated. Flashes during the Time Out period when reactivation is required.

**Sounder Output.** Constant output during the Time Out period to warn the operator of impending system shut down unless the reactivation sequence is performed.

**Remote Override.** Overrides the Deadman System when the trigger nozzle is unstowed (for dual pressure/overwing refuelling systems).

**Remote Emergency Stop.** Engine stop or full system shut down when activated (subject to exact installation details).

### DP Protection System Features

**High Filter DP Protection.** Activated by a signal from the DP Switch. Cuts the power to the DP Output terminal which feeds a solenoid actuated valve in the Deadman air system.

**System Lock Out.** Once the system has been activated and then the high DP signal is removed (falling DP as flow decreases), the Deadman System stays fully locked until the system is reset.

**DP Warning Lamp Output.** Lamp 'On' to tell the operator that the system has shut down due to high filter differential pressure.

**Reset/Override Switch.** Key operated switch remotely located in the cab which is used to reset/override the system by applying a 0 Volt signal. Switch On and then Off to reset. If the Switch

remains in the On position the DP Protection System is overridden (which is required in order to carry out the DP Gauge full scale movement test). The DP Warning Lamp will flash to warn the operator that the DP Protection System is overridden.

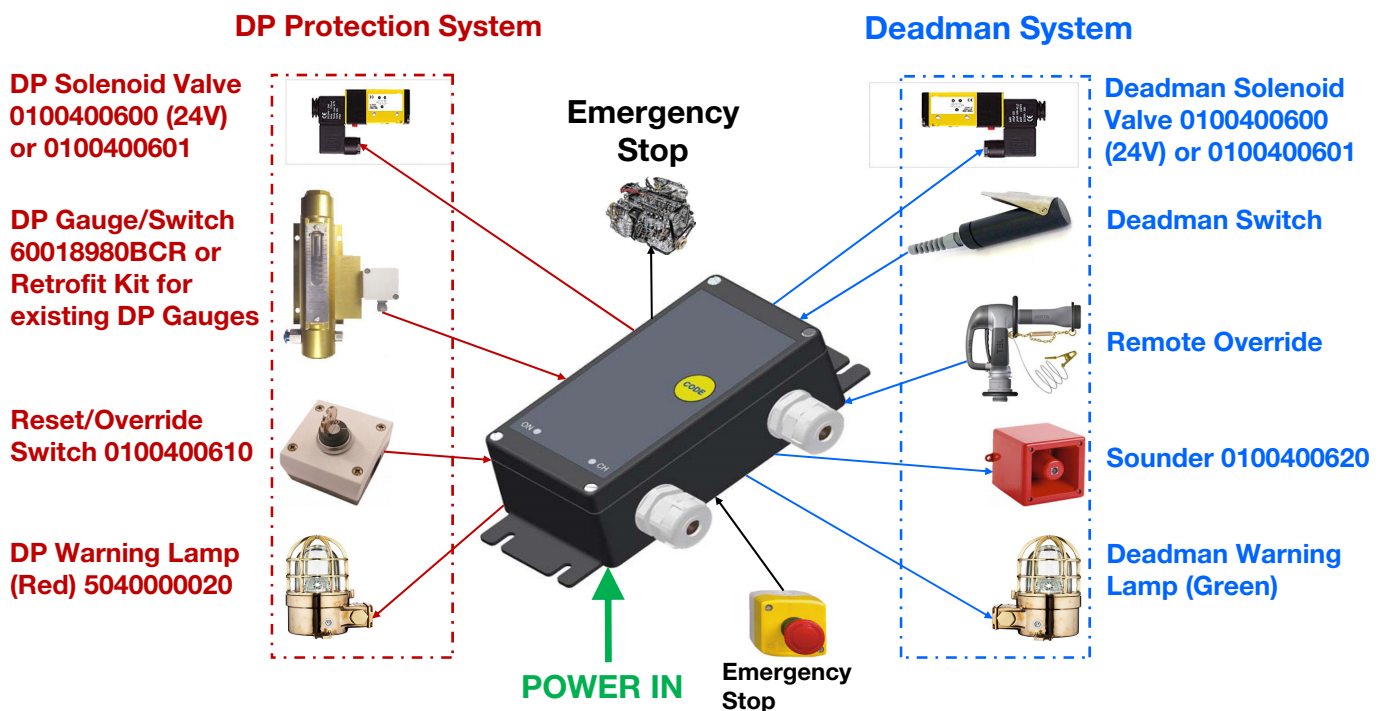
**Operational Security.** The DP Protection System **CANNOT** be overridden by operating the vehicle Deadman Override switch.

**Fail Safe Design.** The DP Protection System automatically shuts down if the cable to the DP Switch is broken or disconnected.

### Combined Deadman and DP Protection System

When there is a high filter DP the system cuts power to main Deadman Output terminal and also to the DP Protection System Output terminal. All other features are as described above.

### Schematic Diagram



### How To Order

Aljac Combined Deadman and DP Protection system. Part number 0100302358 or 0100302358A (2 minute warning).  
Aljac Deadman Only System (no DP Protection enabled). Part number 0100301740.

### Specification

**Dimensions:** 205x110x57mm.

**Nett Weight:** 335g.

**Power supply:** Between 11V to 27V DC.

**Output voltage:** As supply voltage.

**Maximum output current:** 3.5A per terminal.

**Maximum total load:** 5A.

**Maximum potential between minus pole and ground:** 50V DC/AC peak.

**Deadman and DP Switch Supply:** 5V DC, current limited to 0.5mA.

**Time Out:** Warning starts at 1.1/2 minutes, system shut down in 30 seconds if not reactivated (option, warning starts at 2 minutes).