

## REDUCE COSTLY ENGINE FAILURE



# INTRODUCTION

THIS PRODUCT GUIDE WILL ASSIST IN SELECTING THE PANEL AND ALL ANCILLARY COMPONENTS FOR ALL YOUR APPLICATIONS. THERE ARE EXAMPLES THAT WILL ASSIST YOU IN SELECTING YOUR PARTS. NOT ALL PARTS AVAILABLE ARE LISTED IN THE GUIDE, **TO ACCESS ALL PARTS PLEASE CONTACT YOUR LOCAL BRANCH OR RCT CONTACT.**

The Muirhead® Protection Panel is a market leader in engine protection for all mining and industrial equipment. The panel has proven to suit the harshest conditions both in the domestic and international markets. The solid state design and the ability to configure the functions has proven to suit all customers requirements for engine protection.

RCT has now added to the already many features of the panel by creating more flexibility to the configuration of the panel.

The panel has now been developed to protect and monitor more than just the engine of equipment. The panel has the ability to be configured to suit almost any monitoring situations. From the simplest three function engine warning system to the more complicated warning and limit system.

The 6 configurable inputs and three outputs can offer the customer the ability to set up the panel to suit their individual applications.

This now offers greater flexibility and control to all customers when putting together protection for all their equipment assets.

Universal application in all types of water & air cooled machines built for:

**SURFACE MINING**  
**UNDERGROUND MINING**  
**TRANSPORT**  
**AGRICULTURE**  
**CONSTRUCTION**  
**INDUSTRIAL**



# PROTECTION PANEL OVERVIEW

The Muirhead® Protection Panel is designed to monitor practically any alarm condition on virtually any piece of mining or industrial equipment.

## FEATURES

- Multi Voltage (12 to 32 volts)
- 6 inputs and 3 outputs
- All inputs/outputs Windows configurable
- IP65 Enclosure

## BENEFITS

- Multiple applications
- Simple installation
- Robust design

- 3 configurable outputs
- Time delay adjustable output from 0 to 60 seconds.
- Outputs can be configured for instant activation or delayed.
- Outputs can be configured to suit individual inputs.
- Outputs rated at 8 amps continuous.
- Each output has different setting characteristics

- 6 Configurable inputs.
- Each input can be configured to be NO or NC
- Inputs can be set to switch to HI or LO
- Inputs can be matched to outputs

- Multi Voltage
- IP65
- Individual labelling
- Windows Configurable

- 6 LED indicators
- Indicators can latch on activation
- Indicators can pulse or be on constant



# PANEL USAGE OPTIONS



|                                                                                     |                                                                                                                                                                                                         |                                                                                     |                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p><b>TANK LEVEL MONITORING SYSTEM</b></p> <p>PANEL CAN BE USED IN CONJUNCTION WITH LEVEL PROBES TO INDICATE LEVELS OF BORE TANKS</p>                                                                   |    | <p><b>AIR COOLED OR WATER COOLED WARNING SYSTEM</b></p>                                                                                                                                                                                                              |
|   | <p><b>FUEL LEVEL WARNING SYSTEM</b></p> <p>THREE STAGES OF WARNING. 1ST STAGE WITH TIMED ALARM AND LIGHT, 2ND STAGE INTERMITTENT ALARM WITH LIGHT, 3RD STAGE CONSTANT ALARM WITH LIGHT AND SHUTDOWN</p> |   | <p><b>HYDRAULIC WARNING SYSTEM</b></p> <p>PANEL CAN BE CONFIGURED TO MONITOR HYDRAULIC LEVELS, TEMP AND PRESSURES. SYSTEM CAN BE MONITORING ONLY OR CONFIGURED TO WARN AND SHUT DOWN</p>                                                                             |
|  | <p><b>ENGINE WARNING SYSTEM WITH INSTANT SHUTDOWN AND LATCHED FAULT LEDS</b></p>                                                                                                                        |  | <p><b>TWIN ENGINE PROTECTION</b></p> <p>THE 6 FUNCTION PANEL CAN BE CONFIGURED TO MONITOR TWO ENGINES. THE PANEL CAN HAVE TWO COOLANT LEVEL INPUTS. IT IS LIMITED TO A TOTAL OF 3 FUNCTIONS PER ENGINE. LED'S CAN LATCH ON TO ALLOW EASY IDENTIFICATION OF FAULT</p> |
|  | <p><b>TRAY ANGLE</b></p> <p>INTERFACED INTO OUR TRAY INCLINE SENSOR THE PANEL CAN WARN OF AND CONTROL AT MULTIPLE STAGES</p>                                                                            |  | <p><b>BOOM SWING LIMIT WARNING SYSTEM</b></p> <p>THREE STAGES OF WARNING. PANEL CAN BE CONFIGURED TO ALARM OPERATOR WITH VISUAL, AUDIBLE AND THEN SHUTDOWN AT VARIOUS STAGES</p>                                                                                     |
|  | <p><b>STATIONARY PUMP ENGINE PROTECTION</b></p> <p>ENGINE &amp; PUMP PROTECTION WITH INPUTS CONFIGURED TO SUIT BOTH ENGINE &amp; PUMP SENSORS</p>                                                       |  | <p><b>DRILL HEIGHT LIMIT SYSTEM</b></p> <p>PANEL CAN BE CONFIGURED TO INTERFACE INTO LIMIT SWITCHES TO MONITOR CRITICAL DRILL INPUTS</p>                                                                                                                             |

# 8 STEPS TO SELECTING THE RIGHT EPS



1

6 FUNCTION OR 4 FUNCTION  
**WATER** COOLED OR **AIR** COOLED



2

WE CAN **CONFIGURE** YOUR PANEL TO SUIT YOUR APPLICATION OR WE MIGHT HAVE THE OFF THE SHELF SOLUTION



3

CHOOSE THE CORRECT **SENSOR** OR **SWITCH** THAT SUITS YOUR APPLICATION



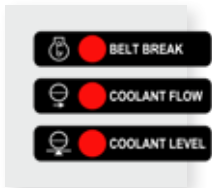
4

WE HAVE STANDARD **LOOMS** ON THE SHELF OR WE CAN CUSTOM MAKE ONE FOR YOU



5

ARE YOU **RETURNING TO IDLE**?  
IF SO ASK ABOUT OUR RETURN TO IDLE KITS



6

THERE ARE A NUMBER OF DIFFERENT **LABELS** AVAILABLE



7

SELECT A WARNING AUDIBLE **ALARM**



8

**INSTALLATION** SUNDRY KIT



## STEP 1 | SELECT THE ENGINE PROTECTION MODULE YOU NEED

Select the module which suits your machine or application. For professional advice on which EPS module best suits your machine or application, please contact us.



OR



### Water Cooled Module

The water cooled module is specifically designed for use on machines with water cooled engines. The module is capable of monitoring virtually any machine function and does not rely on the Original Equipment Manufacturer's (OEM) gauges or switches to monitor the vehicle's critical engine faults. The system module can be supplied with function switches and probes to suit the machine.

### Air Cooled Module

The air cooled module is specifically designed for use on machines with air cooled engines. The module is capable of performing the same functions as the water cooled module, with the exception that it utilises the OEM type temperature switch to monitor engine temperature. For monitoring all other engine faults and vitals, the system module can be supplied with all other function switches to suit the machine.



## STEP 2 | CONFIGURE THE PROTECTION MODULE TO SUIT YOUR NEEDS

We can configure your panel to suit your application. It can be programmed to suit all types of underground, surface and industrial machines ranging from loaders, dump trucks, road haulers, dozers, drills and other forms of mobile and stationary equipment.



## STEP 3 | SELECT THE PROBE/SWITCH YOU NEED



Select the appropriate probe/switch you require to monitor your desired engine function. If the probe/switch you need is not listed or you require assistance on choosing the right probe/switch please contact us.

### COOLANT TEMPERATURE SWITCHES



LIGHT DUTY TEMP SWITCH  
100°C N/C THREAD: 1/8 NPT  
**PART NO. 9454**



HEAVY DUTY TEMP SWITCH  
96°C N/C THREAD: 3/8 NPT  
**PART NO. 1763**



HEAVY DUTY TEMP SWITCH  
100°C N/C THREAD: 3/8 NPT  
**PART NO. 1764**



HEAVY DUTY TEMP SWITCH  
104°C N/C THREAD: 3/8 NPT  
**PART NO. 1765**



HEAVY DUTY TEMP SWITCH  
107°C N/C THREAD: 3/4 UNO  
**PART NO. 8491**

**NO. 3379 ADAPTOR BUSH TO SUIT TEMPERATURE SWITCH**

**USED ON 6 CYLINDER PERKINS ENGINES**

### COOLANT LEVEL PROBES



LIGHT DUTY COOLANT  
PROBE THREAD: 1/8 NPT  
**PART NO. 2006**



MEDIUM DUTY COOLANT  
PROBE THREAD: 1/4 NPT  
**PART NO. 2887**



HEAVY DUTY COOLANT  
PROBE THREAD: 1/4 NPT  
**PART NO. 2205**

### OIL TEMPERATURE SWITCHES



HEAVY DUTY TEMP SWITCH  
120°C N/C THREAD: 3/8 NPT  
**PART NO. 1767**



HEAVY DUTY TEMP SWITCH  
135°C N/C THREAD: 3/8 NPT  
**PART NO. 1768**

**NO. 3379 ADAPTOR BUSH TO SUIT TEMPERATURE SWITCH**

### COOLANT FLOW SWITCH



FLOW SWITCH N/O  
56MM PADDLE  
**PART NO. 6041**

### PROXIMITY SWITCHES



PROXIMITY SWITCH 30MM  
SENSING N/O 2 WIRE  
SYSTEM **PART NO. 1593**



PROXIMITY SWITCH 30MM  
SENSING N/O 3 WIRE SWITCHED  
TO GROUND **PART NO. 4072**

### OIL LEVEL SWITCHES



OIL LEVEL SWITCH USED FOR  
TEMPERATURES BELOW 211°C  
THREAD: 1/4 NPT **PART NO. 3072**



HEAVY DUTY OIL LEVEL SWITCH  
USED FOR ALL TEMPERATURE  
RANGES **PART NO. 8690**

**PART NO. 2987  
GASKET TO SUIT FLOW SWITCH**

**NO. 3379 ADAPTOR BUSH TO SUIT TEMPERATURE SWITCH**

### CYLINDER HEAD TEMPERATURE SWITCH



TEMPERATURE SWITCH  
185°C  
**PART NO. 1232**

### ENGINE OIL PRESSURE SWITCHES



LIGHT DUTY PRESSURE SWITCH  
8 PSI N/O THREAD: 1/8 NPT  
**PART NO. 3074**



HEAVY DUTY PRESSURE SWITCH  
9 PSI N/O THREAD: 1/8 NPT  
**PART NO. 8725**



OIL PRESSURE SWITCH DEUTSCH  
CONNECTION THREAD: 9/16 UNO  
**PART NO. 3755**

**TO SUIT DEUTZ AIR  
COOLED ENGINES**



## STEP 4 | SELECT THE LOOM YOU NEED

For additional information on extra loom sizes and cable fittings, please contact us.



5 METRE LOOM TO SUIT EPS  
MODULE PART NO. 9200/9301  
**PART NO. 8797**



10 METRE LOOM TO SUIT EPS  
MODULE PART NO. 9200/9301  
**PART NO. 8805**



10 METRE LOOM TO SUIT EPS  
MODULE PART NO. 3565/3747  
**PART NO. 5994**



CUSTOM MADE LOOMS TO SUIT  
MACHINE SPECIFICATIONS /  
PANEL CONFIGURATION



## STEP 5 | SELECT THE IDLE DOWN KIT YOU NEED

For professional advice on choosing the right engine control or idle down kit for your machine, please contact us.



RETURN TO IDLE CONTROLLER TO SUIT MACHINES  
WITH ELECTRONIC THROTTLE SYSTEMS  
**PART NO. 7767**



RETURN TO IDLE HYDRAULIC VALVE TO SUIT  
MACHINES WITH HYDRAULIC THROTTLE SYSTEMS  
**PART NO. 4570**

**SHUTDOWN KITS ARE  
ALSO AVAILABLE, PLEASE  
CONTACT US FOR MORE  
INFORMATION**



## STEP 6 | SELECT THE ENGINE PROTECTION YOU NEED

If you need to monitor additional or alternative functions than those provided in the standard EPS kit, please choose the labels you need from the list provided.



PART NO. 5636

PART NO. 5629

PART NO. 1372

PART NO. 0427

PART NO. 0426

PART NO. 0437

PART NO. 0428

PART NO. 0442

PART NO. 0453

PART NO. 0486



PART NO. 3465



PART NO. 3144



PART NO. 5785



PART NO. 5780



PART NO. 5782



PART NO. 5784



PART NO. 5779



PART NO. 5781



PART NO. 5783



PART NO. 5778



PART NO. 6143



PART NO. 1526



PART NO. 5630



PART NO. 5635



PART NO. 5634



PART NO. 5637



PART NO. 1413



PART NO. 4352



PART NO. 5638



PART NO. 5633



PART NO. 4350



PART NO. 5631



PART NO. 5632



PART NO. 4348



PART NO. 1411



PART NO. 4349



PART NO. 5628



PART NO. 1417



PART NO. 8424



PART NO. 1368



## STEP 7 | SELECT THE ALARM YOU NEED

For professional advice, please contact us.



ALARM WARNING CONSTANT OR INTERMITTENT  
SIREN POWER: 12/24V  
**PART NO. 1723**



ALARM WARNING  
DECIBELS : 102DB POWER: 12/24V  
**PART NO. 6162**



## STEP 8 | SELECT THE CABLES, CRIMPS AND ADAPTOR BUSHES YOU NEED

A standard installation crimp kit is available.



ENGINE PROTECTION SYSTEM  
INSTALLATION CRIMP KIT  
**PART NO. 4420**







Discover more: [rct-global.com](http://rct-global.com)

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