

REDUCE COSTLY ENGINE FAILURE



ENGINE PROTECTION
SYSTEMS

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

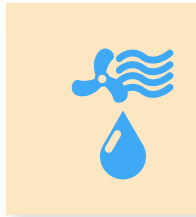


PANEL USAGE OPTIONS



TANK LEVEL MONITORING SYSTEM

PANEL CAN BE USED IN CONJUNCTION WITH LEVEL PROBES TO INDICATE LEVELS OF BORE TANKS

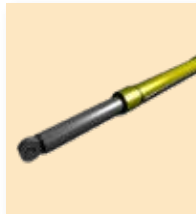


AIR COOLED OR WATER COOLED WARNING SYSTEM



FUEL LEVEL WARNING SYSTEM

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



HYDRAULIC WARNING SYSTEM

PANEL CAN BE CONFIGURED TO MONITOR HYDRAULIC LEVELS, TEMP AND PRESSURES. SYSTEM CAN BE MONITORING ONLY OR CONFIGURED TO WARN AND SHUT DOWN



ENGINE WARNING SYSTEM WITH INSTANT SHUTDOWN AND LATCHED FAULT LEDS



TWIN ENGINE PROTECTION

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



TRAY ANGLE

INTERFACED INTO OUR TRAY INCLINE SENSOR THE PANEL CAN WARN OF AND CONTROL AT MULTIPLE STAGES



BOOM SWING LIMIT WARNING SYSTEM

THREE STAGES OF WARNING. PANEL CAN BE CONFIGURED TO ALARM OPERATOR WITH VISUAL, AUDIBLE AND THEN SHUTDOWN AT VARIOUS STAGES



STATIONARY PUMP ENGINE PROTECTION

ENGINE & PUMP PROTECTION WITH INPUTS CONFIGURED TO SUIT BOTH ENGINE & PUMP SENSORS



DRILL HEIGHT LIMIT SYSTEM

PANEL CAN BE CONFIGURED TO INTERFACE INTO LIMIT SWITCHES TO MONITOR CRITICAL DRILL INPUTS

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



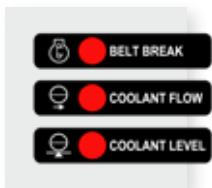
4

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.



4 FUNCTIONS

EPS WATER COOLED 4 FUNCTION
PART NO. 9200

EPS AIR COOLED 4 FUNCTION
PART NO. 9301

OR



6 FUNCTIONS

EPS WATER COOLED 6 FUNCTION
PART NO. 3565

EPS AIR COOLED 6 FUNCTION
PART NO. 3747

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
PROBE THREAD: 1/8 NPT
PART NO. 2006



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



HEAVY DUTY COOLANT PROBE
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

CYLINDER HEAD TEMPERATURE SWITCH



TEMPERATURE SWITCH
185°C
PART NO. 1232

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

NO. 3379 ADAPTOR BUSH TO SUIT TEMPERATURE SWITCH

TO SUIT DEUTZ AIR COOLED ENGINES

ENGINE OIL PRESSURE SWITCHES



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



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



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

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.

BELT BREAK	PART NO. 5636	STEERING OIL LEVEL	PART NO. 3465	COMP DISCHARGE TEMP	PART NO. 6143	HYD OIL PRESSURE	PART NO. 4350
BELT BREAK	PART NO. 5629	COOLANT LEVEL TEMP	PART NO. 3144	CRUSHER OIL FLOW	PART NO. 1526	HYD OIL TEMP	PART NO. 5631
COOLANT LEVEL FLOW	PART NO. 1372	COOLANT LEVEL FRONT	PART NO. 5785	COOLANT FLOW	PART NO. 5630	TRANS OIL LEVEL	PART NO. 5632
COOLANT LEVEL	PART NO. 0427	COOLANT LEVEL REAR	PART NO. 5780	COOLANT LEVEL	PART NO. 5635	TRANS OIL PRESSURE	PART NO. 4348
DRILL WATER LEVEL	PART NO. 0426	COOLANT LEVEL MAIN	PART NO. 5782	OIL LEVEL	PART NO. 5634	TRANS OIL TEMP	PART NO. 1411
DRILL HEAD DOWN	PART NO. 0437	COOLANT LEVEL AUX	PART NO. 5784	OIL PRESSURE	PART NO. 5637	ALTERNATOR	PART NO. 4349
CONVERTOR OIL TEMP	PART NO. 0428	COOLANT LEVEL 1	PART NO. 5779	OVER RPM	PART NO. 1413	FILTER RESTRICT	PART NO. 5628
COMP OIL LEVEL	PART NO. 0442	COOLANT LEVEL 2	PART NO. 5781	CYL HEAD TEMP	PART NO. 4352	BRAKE TEMP	PART NO. 1417
COMP OIL PRESSURE	PART NO. 0453	COOLANT LEVEL LEFT	PART NO. 5783	ENGINE TEMP	PART NO. 5638	PUMP FLOW	PART NO. 8424
FUEL LEVEL	PART NO. 0486	COOLANT LEVEL RIGHT	PART NO. 5778	HYD OIL LEVEL	PART NO. 5633	OIL PRESSURE LEVEL	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







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