


ProcessDefender™

Power Monitors

Prevents unnecessary
damage and downtime for
motor driven equipment





**ProcessDefender™
protects machines
and processes against
unnecessary damage and
downtime.**

When it comes to protecting machines and processes from abnormal conditions, our products have developed a reputation as the best in the business. For over 25 years, our power monitoring solutions have been used to protect customer equipment against costly damage and downtime.

Stop damage & downtime before it occurs

Process, Reliability and Maintenance Engineers are often confronted with the consequences of unscheduled downtime and expensive repair costs associated with the unexpected failure of motor driven equipment. The event may have been caused by an operator error, equipment failure, upstream process problems or a myriad of other unexpected events.

Protecting motor driven equipment with ProcessDefender™ can alert the operator to events such as pump run dry, dead head, cavitation, or a closed suction valve. An alert can be as simple as a visual operator alarm, a signal to a plant DCS, or a direct local shut down of the motor. Either way, ProcessDefender™ will react quickly enough to protect the equipment from damage and downtime.



Protection for every application



Pumps



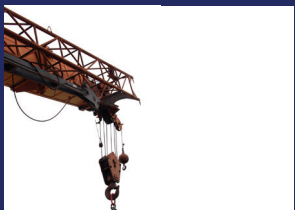
Bar Screens



Clarifiers



Conveyors



Cranes & Hoists



Fans



Mixers



Rock Crushers



KEY FEATURES & BENEFITS



Arc Flash Protection

The ProcessDefender HMI is a fully sealed, NEMA 4X rated display, providing complete arc flash protection for the user during programming and operation.



Motor Load Monitoring

ProcessDefender uses the motor as a sensor to protect against abnormal conditions.



External HMI

The ProcessDefender system consists of a DIN-rail mountable sensor and door mounted HMI for user programming and operation.

ADDITIONAL FEATURES & BENEFITS

- Real Time Clock
- Logging of alarms including time and date stamp
- Auto setting of protection parameters
- Over-and-under-voltage protection
- Three independent alarm relays
- Accumulated motor run time
- With the use of additional Current Transducers, available monitoring of:
 - ◊ Current in each phase
 - ◊ Phase angle voltage
 - ◊ Phase angle current
 - ◊ Power Factor
 - ◊ Line-to-line voltage
- Programmable via HMI or Modbus
- Lockable program settings
- Ability to latch or unlatch alarm relays
- Ability to apply hysteresis to all unlatched alarm relays
- Split core CT's to aid installation
- Free firmware updates applied by user
- Certified to UL, cUL, CE, and UKCA





Preferred Unit of Measurement

Select the preferred unit of measurement for readout. Choose whether to display HP, KW, or % of Motor Power.



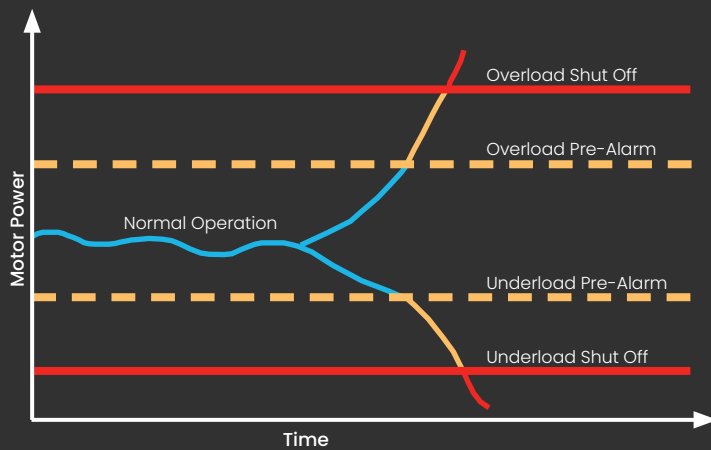
Four Levels of Protection

Four levels of protection for overload and underload; pre-alarms and main-alarms for each.

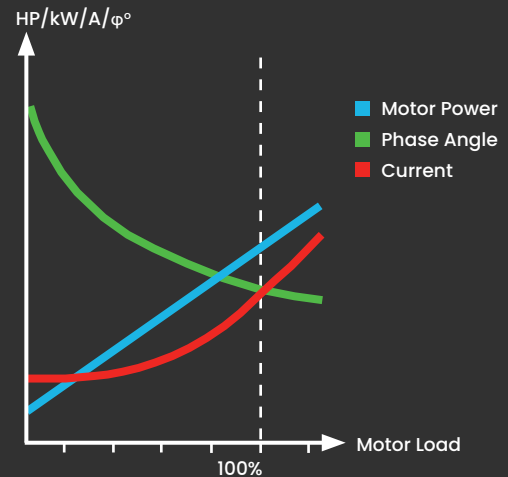


Single SKU

Aside from the Current Transducer (voltage dependent), ProcessDefender consists of just a single model for all voltages (100VAC - 500VAC).



ProcessDefender™ provides early warnings of overload and underload conditions. If necessary, the product will take preventative action against the abnormal condition by shutting down the driven equipment before damage and downtime occur.



Input Power is a far more accurate and reliable method of protecting machines and processes than relying on Current. Unlike Input Power, Current does not have a linear profile, meaning it is unable to provide reliable protection at certain loads.

Simple installation and zero maintenance

ProcessDefender™ comprises a motor power sensor installed in the motor starter panel or MCC, and an HMI installed in the control panel door. Installation is quick, simple and can be entrusted to a plant electrician for existing equipment or a panel builder for new equipment.

ProcessDefender™ has no long-term maintenance requirements, and the plant can expect many years of trouble-free operation.

Technical Data

Supply Voltage¹	1 x 100–240 VAC 3 x 100–480 VAC
Frequency	45 Hz to 65 Hz
Rated Current	Up to 999 A via current transformer
Output Relays	3
Accuracy	≥98%
Repeatability	≥99%
Protection Class	NEMA 4 / IP65 (HMI only)
Approvals	UL, cUL, CE, UKCA

1) ProcessDefender requires one of the following types of 3-phase networks:

- 3-phase, 4-wire, ungrounded wye
- 3-phase, 3-wire, grounded wye
- 3-phase, 4-wire, grounded wye
- 3-phase, 3-wire, resistance grounded wye
- 3-phase, 4-wire, resistance grounded wye

Using the motor as a sensor

ProcessDefender™ uses the motor as a sensor! By accurately measuring motor power, ProcessDefender ensures that abnormal conditions such as pump run dry or a closed suction valve are reliably detected prior to pump damage – both critical demands when using Mag-Drive pumps.



Safe programming

Programming the ProcessDefender does not expose the Engineer to the dangers of Arc Flash. The panel door remains completely closed during programming, thereby protecting facility staff from the high voltages within motor controls. Many facilities will not allow their staff to work on live equipment such as programming a device within the motor control panel or MCC. ProcessDefender can be programmed via either the HMI or Modbus communication.

Piece-of-mind for every application

Application	Challenge	ProcessDefender Solution	Value
All pump types	Dry-running, cavitation and other types of pump failure.	Detects over- and underload conditions. Provides warning and then stops the pump.	Prevents damage and downtime. Increased reliability. Extended equipment lifetime.
	Inefficiency due to low flow, a closed valve, a blocked pipe or impeller, etc.	Detects over- and underload. Sends warning or stops the pump.	Optimized operation. Increased reliability. Reduced equipment wear.
	Mechanical flow switches and temperature sensors are expensive and fail frequently.	Using pump motor as sensor eliminates need for external sensors. No moving parts increases reliability.	Increased reliability. Reduced maintenance, investment and installation costs. Extended equipment lifetime.
	Temperature sensors and flow switches do not register dry-running or no-flow during low load conditions.	Detects over- and underload in low load range. Using pump motor as sensor eliminates need for external sensors.	Increased reliability. Reduced maintenance and installation costs. Extended equipment lifetime.
	Sensors need cleaning and mechanical adjustment.	Using pump motor as sensor eliminates need for external sensors.	Reduced maintenance and installation costs. Easy installation and set up.
Centrifugal pumps	Frequent dry-running causes damage and downtime.	Shuts pump off before it runs dry.	Reduced maintenance costs. Less downtime.
Magnetic pumps	Current monitoring is unreliable. Underload is not detected in low load range.	Detects underload in low load range.	Increased reliability. Reduced maintenance costs. Less downtime.
Screw and impeller pumps	Dry-running is detected too late. Sensors do not register short period of lower motor load as remaining liquid still lubricates the pump.	Detects short period of lower motor load. Sends warning or stops the pump.	Reduced maintenance costs. Extended equipment lifetime. Less downtime.
Mixers	Mixer blade is damaged or has fallen off.	Detects over- and underload. Sends warning or stops the mixer.	Optimized operation
	Difficult to determine when viscosity is right.	Controls viscosity according to motor load using the analog output.	Optimized operation. Improved product quality.
	Shaft oscillation occurs.	Detects abnormal load variations. Sends warning or stops the mixer.	Reduced maintenance costs and downtime.
Scrapers	Jamming occurs.	Detects overload. Sends warning or stops the scraper.	Reduced maintenance costs and downtime.
	Scraper blade is damaged or has fallen off.	Detects over- and underload. Sends warning or stops the scraper.	Optimized operation
Conveyor systems, crushers, etc.	Jamming occurs.	Detects overload. Sends warning or stops the process.	Reduced maintenance costs and downtime.
	Material runs out, causing unnecessary idling.	Detects underload. Sends warning or stops the process.	Optimized operation



Progress through Innovation™

Our innovative solutions are developed with a focus on controlling, monitoring and measuring flow. Contact your authorized H2flow Controls solutions provider to find out how our products can help you and your customers.

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