

CORNELL PUMP COMPANY

RPM²

REMOTE PUMP MONITORING SYSTEM



RPM²

REMOTE

RPM² is patent-pending as of August 16, 2023

RPM²™ SOFTWARE INTEGRATION SYSTEM

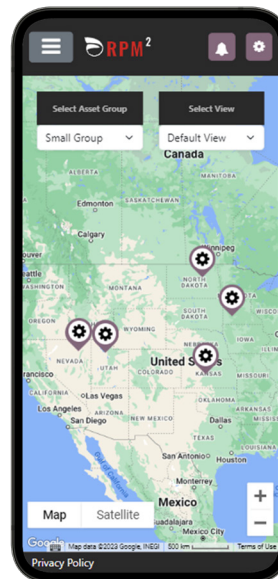
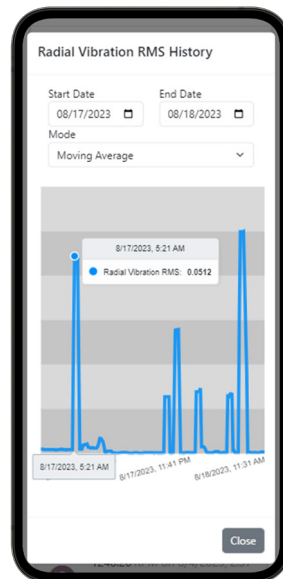
REMOTE PRODUCT MAINTENANCE AND MANAGEMENT

The RPM² software integration system is an excellent tool that simplifies equipment management. With this system, you can easily track, manage, locate, and perform predictive analysis on all your pumps and other equipment with attached IoT hardware. The system offers different user-level protection, groups and compares equipment performance, alerts you of out-of-condition pumps, and centralizes all your documentation. It's also easy to track service logs for each piece of equipment by entering completed services and their dates. The RPM² system is an excellent solution for businesses of all sizes, providing a comprehensive and efficient way to manage equipment.



RPM² MONITORS

- **Equipment run time**
- **Flow Rate**
- **Engine or Motor Conditions**
- **Suction and Discharge Pressure**
- **Pump vibration**
- **Bearing temperature**
- **User-configurable alerts**
- **Escalating up a chain if the alarm is not acknowledged**



Asset Details		
Asset Name	Pump #0037	
Controller	CP750	
Device	COPILOT D80049	
Sample	Sample Device	

Name	Value	Time
Power To Panel	True	8/18/2023, 10:31 AM
RPM	1247.22 RPM	8/18/2023, 10:37 AM
Suction Pressure	-0.023983 PSI	8/18/2023, 10:31 AM
Discharge Pressure	2.215419 PSI	8/18/2023, 10:31 AM

True
Engine Running

This innovative patent-pending technology integrates Cornell Co-Pilot, Pulse, Seeker, and other telemetric devices.

RPM²™ SOFTWARE INTEGRATION SYSTEM



GPS LOCATION

- ALERTS IF EQUIPMENT MOVED BEYOND A DETERMINED AREA (GEOFENCING)
- ASSET RECOVERY IF STOLEN
- LOCATION HISTORY



CONTROL

- START AND STOP MACHINERY
- CHANGE OPERATING SPEED
- CONFIGURE AUTOMATED RUN CONDITIONS



PREDICTIVE MAINTENANCE

- ESTABLISH BASELINE OPERATION FOR EQUIPMENT
- LEADS TO SUGGESTIONS ON WHEN MATERIALS MAY NEED TO BE REPLACED
- ENGINE LUBRICATION/SERVICE
- SEALS, IMPELLERS, AND OTHER WEAR PARTS BASED ON PERFORMANCE
- FLAGS EQUIPMENT THAT IS ACTING OUTSIDE OF "NORMAL"



ANALYSIS

- COMPARATIVE ANALYSIS OF ASSETS OVER TIME AND ACROSS A FLEET (USED MORE OR LESS, EFFICIENCY, ETC.)
- LEADS TO BETTER BUSINESS INTELLIGENCE AND DECISION MAKING
- TRACK FOR WARRANTY

MARKET USES



AGRICULTURE

- The unit's remote control features enable farmers to adjust irrigation settings conveniently, even when off-site, improving resource management.
- Cornell's RPM² enhances sustainability by minimizing water wastage and energy consumption through its intelligent control algorithms.
- The RPM² unit adapts irrigation schedules to changing weather conditions through its integration with weather forecasts, enhancing overall system efficiency.



INDUSTRIAL

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MINING

- Cornell's RPM² contributes to cost savings by optimizing energy consumption and minimizing waste through precise fluid control.
- In applications such as chemical processing, the RPM² unit helps maintain accurate mixture ratios, ensuring product quality and safety.



MUNICIPAL

- The RPM²'s data logging and analysis features assist municipalities in tracking system performance and making informed decisions for infrastructure improvements.
- By adapting to changing usage patterns, the RPM² unit supports consistent water pressure in varying demand scenarios, improving user satisfaction.



RENTAL

- The RPM² unit simplifies rental equipment management by providing remote control capabilities, allowing operators to adjust settings without on-site presence.
- With its real-time monitoring and alerting, RPM² enhances rental equipment reliability and enables quick response to any operational issues.

See separate flyers/white papers for detailed info RPM² usage for each market.

CORNELL CO-PILOT™



Connect via Cell Network



5 Sensor Inputs



Remote Control



CORNELL Co-Pilot™

THE POWER OF IOT

Cornell Co-Pilot is a monitoring system that connects to your pump to track temperature, vibration, and location. Co-Pilot can also be powered with a wired connection for continuous monitoring and control system integration. Our Internet of Things (IoT) platform reflects our dedication to cutting-edge design and meeting customer needs.

USE THE CO-PILOT TO:

- Plan maintenance
- Check operation
- Reduce manual inspections
- Track pump location
- Demonstrate run conditions to customers on warranty claims
- Improve run time through the maintenance program

MONITORING AT YOUR FINGER TIPS

Easily monitor your pump's performance with desktop and mobile apps available for iOS and Android. Receive alerts for out-of-condition operations and view the last GPS location of the pump, all in one convenient platform.

CORNELL CO-PILOT ALLOWS YOU TO:

- Monitor pumps using the cloud and IOT
- Monitor temperature, vibration, and GPS location
- Additionally monitor pressure, flow, start/stop operations, and more*
- Track data over time via web-based and mobile apps
- Receive real-time pump data for performance and health monitoring
- Receive alerts for preset running conditions

*Requires external sensors; contact Cornell for details.

PART OF RPM² ASSET
MANAGEMENT SYSTEM



CORNELL PULSE™



CORNELL
 Pulse™

An innovative technology that makes monitoring your pump easier than ever.



MONITOR PUMP
HEALTH ONSITE



LOG REPORTS TO REVIEW
AND COMPARE



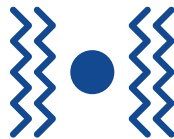
ACCESS INFORMATION VIA
AN EASY-TO-USE MOBILE APP



GAUGE BEARING FRAME
TEMPERATURE



USE ONBOARD POWER FOR UP TO
THREE YEARS FOR CONSISTENT,
ACCURATE READINGS



MEASURE PUMP VIBRATION
SEVERITY



DISTINGUISH/RENAME PUMPS
FOR GREATER CLARITY IN
MULTIPLE PUMP INSTALLATIONS

LEADING-EDGE REAL TIME SNAPSHOT

Cornell Pulse is an innovative technology that allows a user to measure a pump's vibration severity and temperature in real time. Pulse is a compact (approx. 1.5"/4CM diameter) pump-mounted wireless device that captures pump data when queried by the end user. Helpful pump measurements, such as temperature and vibration, are viewed by logging into a mobile app for phones and tablets. When coupled with our Remote Pump Maintenance and Monitoring (RPM2®) system, Pulses report data to the cloud and track pump and other rotating equipment conditions. RPM2® can also record the GPS location from where the scan took place. The detection of common pump problems is vital to increasing the lifespan of a pump and its efficiency.

As the name implies, the Pulse allows a user to check a pump's health quickly. The Pulse is a robust wash-down duty unit that can last around three years with daily measurements (more frequent measurements use battery power and reduce service life.)



CORNELL CO-PILOT™ FLOW METER

INTRODUCING NEW CO-PILOT FLOW METERS



FLOW METER	
LINEAR MATERIALS	EBONITE
METERING TYPE	MAGNETIC
ELECTRODE MATERIAL	HASTELLOY C
FLANGE RATING	ANSI 150LB
INGRESS RATING	IP68 (HEAD UNIT)
BODY CONSTRUCTION	FULLY WELDED & INTERNALLY POTTED
VOLTAGE	BATTERY or 12-24VDC
AMBIENT TEMPERATURE	-4° TO 140°F / -20 TO 60°C
FLUID TEMPERATURE	-13° TO 176°F / -25° TO 80°C
ACCURACY	0.2% of rate +/-0.08in/sec
FLOW VELOCITY RANGE	0.05ft/sec TO 32.81ft/sec
FLOW UNITS	Ft3, GAL, m, m3, L, ML
OUTPUTS	Pulse (Modbus and 4-20 mA options available on powered units)

Battery or wired configurations are available!

FEATURES OF THE METERS INCLUDE:



ROBUST AND RELIABLE
CONSTRUCTION



ACCURATE
MEASUREMENTS



SMALL PHYSICAL
FOOTPRINT



BI-DIRECTIONAL
METERING



ABILITY TO OPERATE
ON BATTERY



EXTRAORDINARY
CHEMICAL RESISTANCE



CERTIFIED IP68
PROTECTION



FULLY WELDED POTTED
BODY



ELECTRODES IN
HASTELLOY C



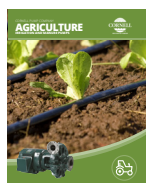
EASY INSTALLATION



OUTSTANDING
CO-PILOT SUPPORT
AND INTEGRATION

FLOWMETER AVAILABLE SIZES: 4" - 12"
FOR OTHER SIZES INQUIRE WITH CORNELL

CORNELL PUMP COMPANY MARKET & PRODUCT LINE



AGRICULTURE



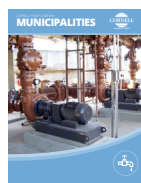
FOOD PROCESS



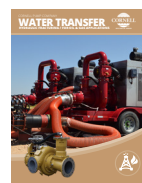
INDUSTRIAL



MINING



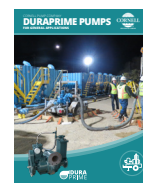
MUNICIPAL



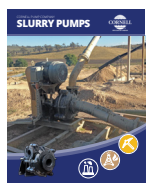
WATER
TRANSFER



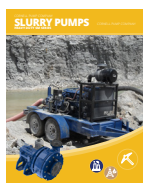
REFRIGERATION



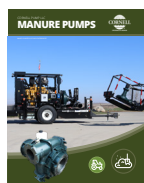
CONSTRUCTION



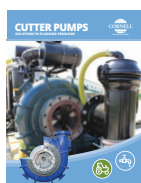
SLURRY



SLURRY SM



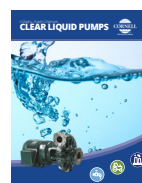
MANURE



CUTTERS



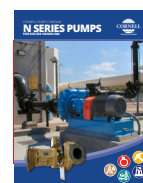
SELF PRIMING



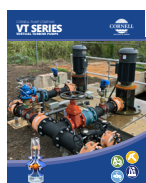
CLEAR LIQUIDS



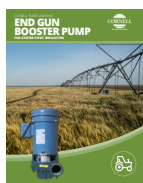
MX SERIES



N SERIES



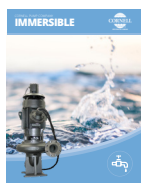
CYCLONE™



EDGE™



HYDRAULIC
SUBS



IMMERSIBLE



CD4MCU



RUN-DRY™



PRIMING
SYSTEMS



CYCLOSEAL®

Cycloseal® and Redi-Prime® are Registered Trademarks of Cornell Pump Company.

Cornell pumps and products are the subject of one or more of the following U.S.
and foreign patents:

6,074,554; 6,036,434; 6,079,958; 6,309,169; 6,104,949.

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Cornell Pump Company
Clackamas, Oregon, USA
P: +1 (503) 653-0330
F: +1 (503) 653-0338