

# iCue™ Connected Filtration Service for Dust Collectors



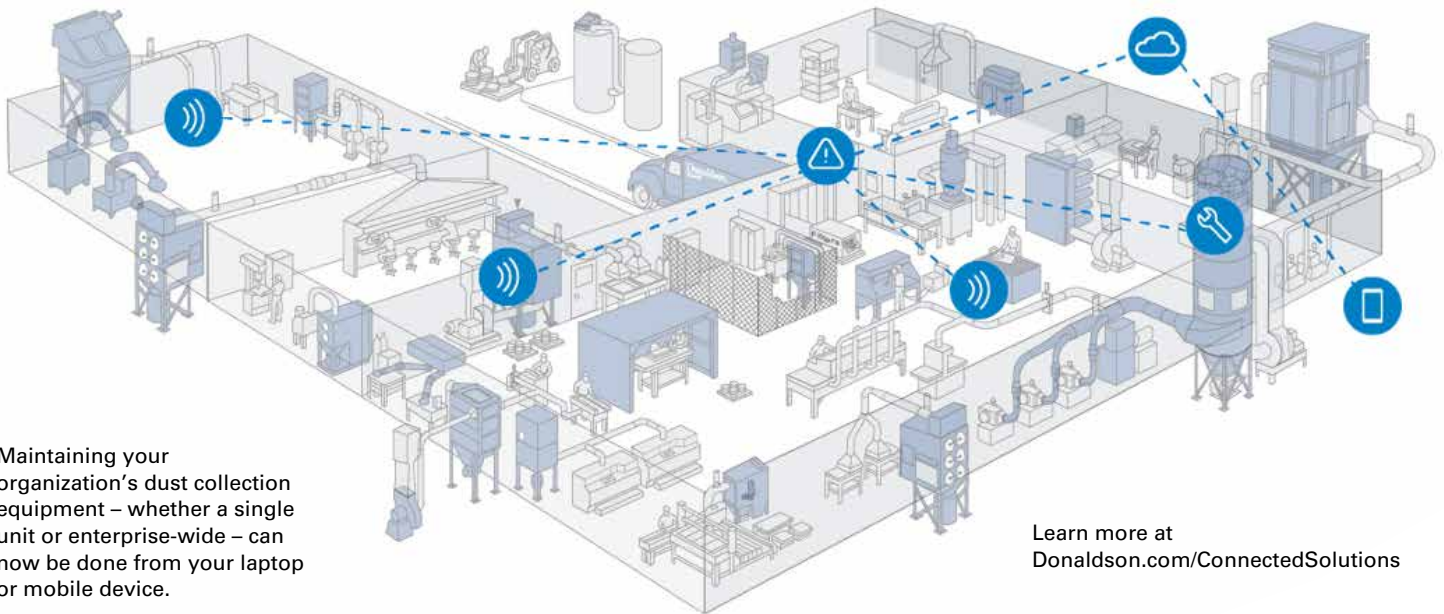




## Here Because We Heard You

Born out of a customer need for greater access to real-time product performance data, the Connected Solutions group at Donaldson develops innovative technologies and services that enable organizations to monitor and maintain their filtration equipment more effectively. All while freeing up valuable time and resources to focus on mission critical initiatives.

Building on more than a century of filtration expertise and the latest IoT technology, the Connected Solutions group has designed a service that remotely monitors a facility's dust collection equipment and provides operational insights directly to end-users. The service will revolutionize the way organizations monitor, manage, and optimize their dust collection systems.



Maintaining your organization's dust collection equipment – whether a single unit or enterprise-wide – can now be done from your laptop or mobile device.

Learn more at  
[Donaldson.com/ConnectedSolutions](https://www.donaldson.com/ConnectedSolutions)



# Dust Collector Remote Monitoring Made Easy

The Donaldson iCue™ connected filtration service monitors industrial dust and fume collectors – virtually eliminating the need to manually check readings.

By continuously monitoring equipment operation and putting real-time performance data at your fingertips, the iCue service can help:



## Support Efficient Maintenance and Operation

- Automatically monitor the status of all your dust collectors from a single web-based dashboard
- Identify potential issues before they create the need for larger, more time-intensive corrective action
- Manage and track compressed air and fan energy use to support your sustainability initiatives.



## Reduce Unplanned Downtime

- Monitor key parameters on the collector and proactively address issues
- Set and configure alerts so you receive notifications when pre-set thresholds are breached or your dust collector is operating outside the pre-set parameters



## Manage and Track Regulatory Compliance Information

- Access real-time performance data to complete compliance reports
- Manage potential exposure risks by monitoring airflow levels through the collector



## Manage Work In Challenging Environments

- Help manage staff exposure by reducing the need to access equipment and lower exposure to harsh weather, heights, ice or debris
- Help manage staff exposure to potentially hazardous materials

### CASE STUDY

## Reduced Preventative Maintenance by 900 Hours per year.

A large industrial minerals plant cut their preventative maintenance time by 900 hours a year. By remotely monitoring its filtration equipment with the Donaldson iCue service, a large industrial minerals plant lowered costs and increased staff productivity by reducing quarterly physical inspections and certain preventative maintenance tasks.

*Savings calculated June 2020*





## Anytime Access to Insight

The iCue service works with nearly all major brands of dust and fume collectors, and includes a variety of sensor options so you can track the performance metrics that are most critical to your operation.

Machine data from each connected device is collected and sent to Donaldson's secure cloud, where it is transformed into actionable insights that are available on your dashboard. This web-based dashboard displays the status of all dust collection equipment across your operation, and lets you configure alarm levels and notifications.

### A Sensor Integrated Gateway

monitors the dust collector's core operation, tying into existing air lines and measuring several data points.

**Aggregated data** is sent to Donaldson's secure cloud via a cellular connection, avoiding the need to link to a facility's internal network.

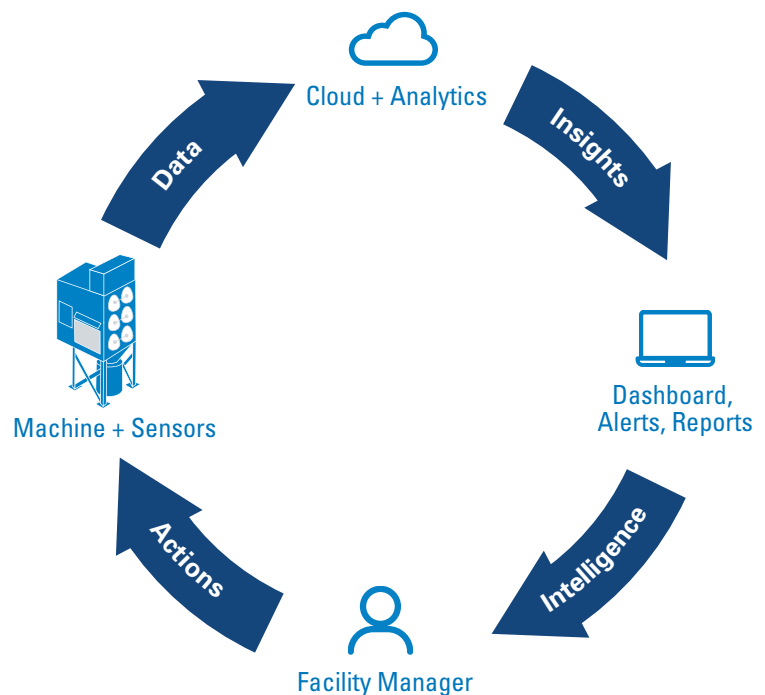
**An easy-to-use online dashboard** enables visibility into all connected dust collectors at one or more facilities.

**For more complex analysis,** plotted data over various sensors and timeframes adds understanding of longer-term performance trends.

**Immediate alerts** notify responsible parties when issues arise that may require attention.

**A weekly status report** summarizes the overall status and performance of all connected dust collectors.

**Partner View Access** provides access to your third party service vendors, giving them the ability to monitor and quickly respond to service alerts.





## Installation Without Complication



The iCue service requires minimal hardware and installs in minutes. There is no need to modify or replace your existing controller.

The wireless gateway mounts magnetically to the collector, with sensors adhered to key points inside. The gateway operates on 24V DC power and includes an AC (90V to 305VAC) to DC converter. Because it's web-based, there's no software to install. Donaldson's secure cloud and network communication keeps all data separated from your internal networks.

Once installed, simply log in, configure your dashboard settings and alarm thresholds, and designate the team members who will receive reports and alerts.

### CASE STUDY

#### How Monitoring Pressure Saved Nearly \$20,000

A metalworking operation was experiencing short filter life (less than six weeks) for unexplained reasons. Their iCue connected filtration service indicated the compressed air pressure was inadequate to pulse-clean the filters.

Adjusting the compressed air system extended the average filter life from six weeks to one year, saving \$19,703 USD annually in time, parts, and labor.

*Savings calculated June 2020*





# Analytics and Integrated Sensors Gather Real-Time Performance Data

Because certain functions are important to monitor in all systems, the iCue service integrates several standard sensors into its cellular gateway. Additional sensors are also available and can be combined to monitor additional parameters based on your maintenance, compliance and operational needs.

## STANDARD MONITORING

### A Differential Pressure

This sensor monitors pressure drop as air passes through the filter media. Differential pressure (dP) is a valuable indicator of filter condition, and many regulatory agencies require dP reporting for air permits. By continuously monitoring dP, the iCue service can provide early alerts about filter issues.

### B Airflow

This sensor monitors relative airflow, air volume and velocity in the collector's main inlet duct, measuring whether there is sufficient airflow to pull dust into the collector. Low-trending airflow could be the result of a plugged or expired filter and lead to potential employee exposure.

### C Compressed Air Pressure

This sensor monitors changes in the compressed air pulse that cleans the filters. Data from this sensor can alert you to the need to restore normal cleaning functionality, increasing filter lifespan and generating potential savings on parts, labor, and unplanned downtime.

### D Gateway Temperature

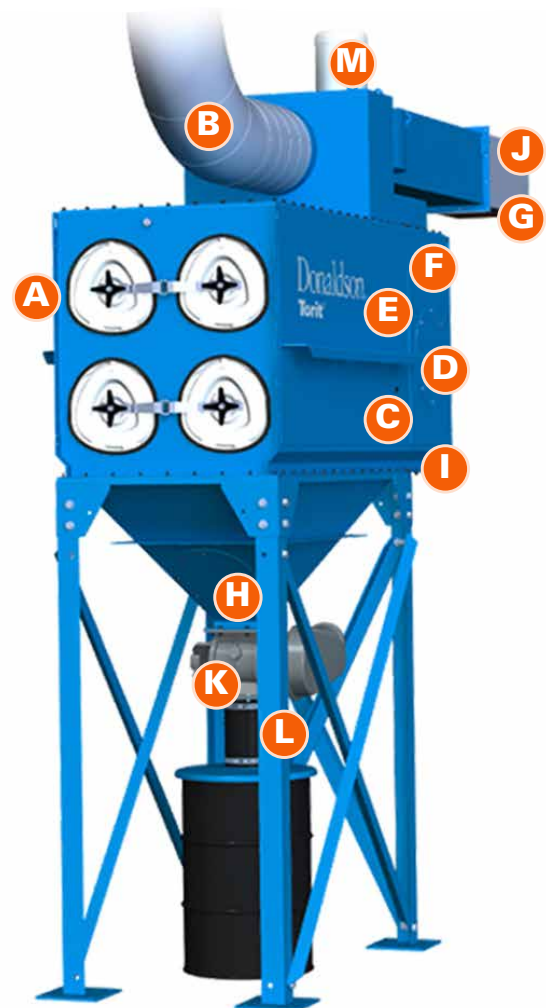
This sensor promotes system longevity by tracking the temperature inside the wireless internet gateway device on the collector and providing alerts when optimal operating temperatures are exceeded.

### E Pulse Valve Health

Pulse Valve Health monitors pulse valve functionality and pulsing frequency on collectors with up to three manifolds to help detect compressed air problems or failed pulse valves which can affect filter life. If an issue arises with the pulse valves, the service sends an alert.

### F Maintenance Hours of Service

The iCue service features an HOS feature that automatically detects when a machine is running, counts the hours of service and alerts users when it's time to perform regularly scheduled maintenance, based on their customized, pre-configured HOS thresholds.





## OPTIONAL MONITORING

### **G** Particulate Trend

This sensor monitors particulate trends in emissions. The particulate monitor provides alerts to prompt immediate attention before emissions limits are breached. It also provides accurate compliance data between tests, including documented evidence that particulate concentration is within defined regulatory limits.

### **H** Point Level (Hopper Plug Detector)

This sensor, mounted on a rotating paddle inside the dust collector hopper, triggers an alert when the paddle can no longer rotate, which may indicate an obstruction. This sensor can also indicate a stopped rotary valve or overflowing bin. With early plugging detection, your team can troubleshoot the issue when it's smaller, before filtration is interrupted.

### **I** Internal Temperature and Humidity

This sensor detects both temperature and humidity from a single probe mounted inside the collector or a duct. Notifications are sent if the collector operates outside normal ranges, helping to avoid issues that can damage product or equipment.

### **J** Secondary Differential Pressure

Facilities with stringent air quality standards, or those returning air to the building, often have secondary filters, such as HEPA, included in their

dust collection system. This sensor measures differential pressure (dP) across the HEPA media. Variations in dP across these filters can indicate they are damaged or need to be replaced.

### **K** Zero Speed/Rotary Air Lock

Typically used with collectors that have a rotary air lock. This sensor will detect when the rotary valve has stopped turning while the dust collector is running. Enabling users to take actions before the collector fills with particulate.

### **L** Bin/Drum Level

This sensor alerts users when their dust collector bins are nearly full, removing the guesswork about when to empty them, and preventing both filter damage and the mess that can result from dust overflow. This sensor is especially useful for operations whose bins fill frequently.

### **M** Fan Energy and Power

Donaldson's iCue™ connected filtration service can monitor power and energy use of the fan. It is ideal for customers whose dust collectors use a Variable Frequency Drive (VFD), that automatically adjusts fan speed to maintain optimal airflow.

## Dashboard Puts Data at Your Fingertips

Once the iCue service's sensors are installed, a web-based dashboard lets you see the status of all dust collection equipment across your enterprise. In addition to near real-time equipment status, you'll have access to historical trend data for each connected collector.

Your dashboard also lets you set alarm thresholds based on the needs of your specific application or compliance requirements. When a data point crosses an alarm threshold, an email alert is sent out to the designated users of the application.



Real-time alerts, weekly status reports and detailed dashboards help you better manage your filtration, support uptime, and reduce operating costs.





To learn more about the Donaldson iCue connected filtration service, or to request a demo, contact **ConnectedSolutions@Donaldson.com.**



**Important Notice:**

Many factors beyond the control of Donaldson can affect the use and performance of Donaldson products in a particular application, including the conditions under which the product is used. Since these factors are uniquely within the user's knowledge and control, it is essential the user evaluate the products to determine whether the product is fit for the particular purpose and suitable for the user's application. All products, product specifications, availability and data are subject to change without notice, and may vary by region or country.



Donaldson Company, Inc.  
Minneapolis, MN

[donaldson.com/connectedsolutions](http://donaldson.com/connectedsolutions)  
[shop.donaldson.com](http://shop.donaldson.com)

**North America**

[connectedsolutions@donaldson.com](mailto:connectedsolutions@donaldson.com)  
United States and Canada: 833-310-0017

**Europe**

[connectedsolutions-europe@donaldson.com](mailto:connectedsolutions-europe@donaldson.com)

Italy: 800-142-858

Spain: 900-494-733

Germany: 0800-1825848

United Kingdom: 0800-014-8116

Belgium: 0800-70-613

France: 0-800-90-45-56

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