



Connected Solutions

Donaldson iCue™ Connected Filtration Service Technical FAQ

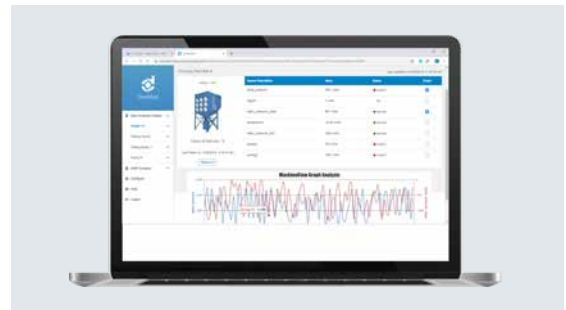
1. What is Donaldson iCue connected filtration service?

Donaldson's iCue connected filtration service monitors dust collectors, using industrial IoT technology. The service tracks dust collector status, stores historical data, and alerts you when an alarm is generated. The solution helps users better maintain and manage their dust collectors and automates data capture for compliance reporting.

2. How does the service work?

The iCue service for dust collectors is comprised of four key components that work together to deliver a comprehensive set of benefits:

- **Sensor-integrated gateway:** Captures sensor data from the collector and sends it to Donaldson's secure cloud, where our predictive analytics turn the data into actionable insights.
- **Online dashboard:** Shows equipment status in near real-time, as well as historical trend data for each connected collector.
- **Alarms and notifications:** Configured during set-up to alert you when maintenance actions may be required, based on deviations from pre-set parameters.
- **Weekly status report:** Provides condition summaries of all connected dust collectors across your operation.



3. Does the iCue service control the dust collector?

No, the iCue is "read-only" and does not control any functions on your collector. It operates independently of your local control network (SCADA or DCS), so it does not compromise the security of control systems or internal data.

4. Can the service be customized for our operation?

Yes, the iCue gateway has four embedded sensors as well as ports to connect up to six sensors – four analog and two digital. Using the web-based dashboard, 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 to all users of the application.

5. What functions in a dust collector does the iCue service monitor?

Issues in dust collectors are generally related to several key functions. The iCue service monitors these functions. Here are the standard sensors that are part of every installation:

- **Airflow:** Tracks changes in relative airflow, air velocity and air volume through the collector and alerts you if airflow deviates too high or too low from the collector's designed flow.
- **Differential pressure (DP):** Enables you to track the life of filters and optimize filter change intervals. Sudden increases or decreases in differential pressure can also alert you to conditions such as filter tears or failure of the cleaning system.

- **Compressed air:** Tells you whether compressed air is at the right level for self-cleaning. You are alerted if pressure is too low to clean properly, too high, which can cause filter damage, or inadvertently left off when the collector is started back up.
- **Pulse valve health:** Using a proprietary algorithm, the iCue service can detect if a pulse valve failed to fire and sends you an alert that a valve may need to be replaced.
- **Hours of service:** The iCue service tracks hours of service of the collector and enables users to track how many hours the collector has run since the last filter change or maintenance.
- **Fan energy and power:** For customers using a Variable Frequency Drive (VFD), iCue service can track instantaneous power used and daily energy consumed by the collector.

6. How are the embedded sensors installed?

The iCue gateway connects to air lines coming out of the clean and dirty air plenums in the dust collector. In most applications, these lines are already running to a dust collector controller or differential pressure gauge. The gateway taps off these lines to determine differential pressure and airflow. The compressed air pressure connects to the pressure manifold.

7. Are there any optional sensors, as well?

Yes, the following additional sensors are available if your operation would benefit from them:

- **Particulate trend:** Tracks emission levels in the exhaust and will alert you if they are starting to rise due to filter leaks or excessive pulse cleaning.
- **Point level:** The sensor is mounted on a rotating paddle in the hopper and triggers an alert when the paddle can no longer rotate, indicating an obstruction.
- **Internal temperature and humidity:** Detects if conditions are too cold, too hot or humid in the collector.
- **Secondary differential pressure:** Indicates if your secondary filters (i.e. HEPA) need replacing.
- **Zero Speed Sensor:** Typically used with collectors that have a rotary air lock. The sensor will detect when the rotary valve has stopped turning while the dust collector is running. Enabling users to act before the collector fills with particulate.
- **Bin Level:** Tracks the level of particulate in a collection drum and sends an alert when it is nearly full and needs to be changed; preventing bin overflows.

For more information on the sensors and issues they address, see our **iCue Service Sensor Overview**.

8. How do the optional sensors connect to the gateway?

Optional sensors are wired to the gateway through a watertight cable grip at the bottom of the gateway. The sensor wires are connected to a screw terminal inside the gateway.

9. How is the gateway powered?

The gateway requires 24V DC power to operate. The installation kit includes an AC/DC converter so it can be powered from 120V AC sources. The components are designed for easy installation.

10. How is the sensor-integrated gateway mounted on the collector?

The gateway includes magnet mounts that enable it to easily attach to the dust collector wherever placement is most convenient.

11. Can I use my own sensors?

Yes, in most cases, if you already have a sensor or need a sensor that is not available through Donaldson, it can be added to your account as long as it is a 4-20mA or a digital sensor with a dry contact output. There is a setup fee to integrate new sensors.

12. How do I set alarm levels and what does each one mean?

You can set alarm thresholds through the dashboard on any data point tracked by the iCue service. These parameters can be configured as high- and/or low-level alarms. Each data point has two high-level and two low-level thresholds. The alarm levels serve as both a visual indication of severity and to also trigger notifications. You can disable alarm notifications, if you prefer.

13. Will I get nuisance alarms when I shut off a dust collector?

Up to five users can have a login to the application. Exceptions can be made for operations with a large number of dust collectors.

14. How many users can have a login to the system?

There is no limit to the number of users who can have a login to your dashboard at your facility.

15. Who can see my data?

Your data is secure. Each user you designate will receive a login to a private, secure dashboard. Donaldson administrators will be able to access your data for analytical purposes, when needed.

16. Will the iCue service create security vulnerabilities in my control systems?

Donaldson provides the cellular communication to pass data from the gateway to the cloud. The data never touches any of your corporate networks or control systems, so it does not introduce any new vulnerabilities. Using the iCue service does not require any changes to your existing network infrastructure.

17. Can the data integrate with my SCADA or DCS system?

The iCue service uses a cloud and web-based dashboard that provides remote data access from anywhere. This is different architecture than a local control network, such as SCADA or DCS. It is not possible to import the data from the Donaldson cloud to a SCADA system, but it may be possible to manually import the data from a spreadsheet or similar file.

18. Is a mobile app available?

You can log in to the web-based dashboard from a browser on a mobile phone or tablet, but a dedicated mobile app is not part of the iCue service.

19. Can the alarms be received as an email or text message?

Email is the method of alert available for all users. Text alerts are not part of the iCue service right now.

20. Can I get data reports?

Yes, a weekly status report showing weekly data trends and alarms is part of the iCue service.

21. Can I use the tool to get historical data?

Yes, the iCue service will store data for up to one year. This data can be graphed in the iCue application or exported to a spreadsheet.

For more details, see the **General FAQ for the Donaldson iCue Connected Filtration Service**.

The iCue service is available in the
US, Canada, Europe, and Asia Pacific.
To learn more about the Donaldson iCue
connected filtration service, or
to request a demo, contact us at:

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