

## Summary

The FDD Committee developed a FDD Technology Master List of the different FDD offerings that assist in identification of performance, maintenance, or repair needs using measurements and software intelligence in an in-field or onboard fashion. They also developed well-defined criteria for inclusion in the different categories to simplify the process and be able to better compare technologies.

**Finalized:** January 18th, 2017

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## Use of this document

*This document provides information on Master List of Onboard/In-Field Fault Detection and Diagnostics (FDD) Technology Offerings.*

*It is based on an official [WHPA Work Product](#) of January 18<sup>th</sup>, 2017 titled “Onboard/In-Field Fault Detection and Diagnostics (FDD) Committee Technology Master List.” This Work Product was developed by the WHPA Onboard/In-Field Fault Detection and Diagnostics (FDD) Committee.*

*This document, and also the WHPA Work Product, may be used in part or whole at no charge. Attribution to the Western HVAC Performance Alliance is requested.*

*We would also ask that you inform the WHPA through [info@performancealliance.org](mailto:info@performancealliance.org) if you have made use of either document, so that we can inform and encourage the hundreds of volunteers who donate their time to providing expert HVAC advice in order to support energy efficiency objectives.*

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## Background

It is important in any market to have good information to be able to make an informed choice to maximize benefits. A quality list of *Onboard/In-Field Fault Detection and Diagnostics (FDD)* technologies broken down by type will allow program managers, mechanical contractors, and manufacturers to more easily make quality decisions in regards to technologies that are promoted and included in FDD programs and offerings to customers.

The FDD Committee developed two work products as part of this project:

1. FDD Technology Master List of the different FDD offerings “that assist in identification of performance, maintenance, or repair needs using measurements and software intelligence in an in-field or onboard fashion.” This list includes is both a historical document to capture FDD capabilities for future reference, and a structure to add new technologies as they are developed.

The WHPA Work Product includes technologies considered but for various reasons no longer in the final Master List. The [FDD Technology Master List worksheet](#) is viewable on an Excel spreadsheet.

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2. Criteria for inclusion in the different FDD Technology categories, to simplify the process and be able to better compare technologies. The Criteria are listed below, in the next section.



## Document 1 of 2 - Criteria

**FDD Technologies:** Technologies that assist in identification of performance, maintenance, or repair needs using measurements and software intelligence in an in-field or onboard fashion.

**CRITERIA:**

Type ->	<b>In-Field</b>	FDD technologies that use temporary sensors that reside with HVAC equipment for a short amount of time
	Short-term retrofit	Considered an interchangeable term with "in-field"
Sub-types ->	Handheld tools	Program or application used through a stand-alone handheld device or through a smart device. Uses temporary sensor data.
Type ->	<b>Onboard</b>	FDD technologies that employ permanent sensors that continually reside with HVAC equipment
	Embedded	Considered an interchangeable term with "onboard"
	Integrated	Considered an interchangeable term with "onboard"
Sub-types ->	Factory-Installed	Devices or FDD capabilities that are permanently installed on HVAC systems as options supplied by the HVAC manufacturer
	3rd Party / Long-term Install	Automated devices or FDD capabilities that are permanently installed or retrofitted on HVAC systems by a 3rd party.
	Field-installed	Considered an interchangeable term with "3rd Party / Long-term Install"
	Thermostat	A thermostat that has onboard FDD capability, or capability to indicate/transmit FDD data
	Software	Analytic software or algorithm that incorporates automated FDD capabilities that may or may not include its own sensors or hardware. It may leverage information from building energy management systems or from other available monitored sensors or data sources.



	<b>Building Management System</b>	An energy management system relating to the overall operation of the building in which it is installed. It often has additional capabilities, such as equipment monitoring, protection of equipment against power failure, and building security. It may also be a direct digital control (DDC) system where the mode of control uses digital outputs to control processes or elements
Type ->	<b>Custom Service</b>	FDD offered as a custom service that leverages automated technologies such as FDD software, in-field FDD technologies, and/or onboard FDD technologies.
Sub-types ->	See Onboard and In-Field Sub-	

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## Document 2 of 2 – FDD Technology Master List

The [FDD Technology Master List worksheet](#) is viewable on an Excel spreadsheet.