

## 1. BACKGROUND AND PURPOSE

Accurate and reliable on-site measurement data is the very basis of evaluating the performance of various energy equipment/systems and quantifying the savings magnitude of energy conservation measures. However, many times building and plant operation personnel may not have access to the required instruments to gather energy systems' operation data.

The Field Validation and Diagnostic Equipment Program is funded by the U.S. Department of Energy (hereinafter referred to as "DOE") through the Better Buildings, Better Plants Program (hereinafter referred to as "Program") to loan various tools or instruments identified on page 5 (hereinafter referred to as "Equipment") without charge to Better Plants and SEP partners working on energy efficiency projects in the United States. Any Equipment provided hereunder may be used for the purposes of furthering the Program including supporting a specific event, such as Kaizen or treasure hunt type audits, or collecting more detailed data to further investigate previously identified energy saving opportunities and help make critical decisions during the implementation of identified opportunities, or determining the instruments' true value in their specific buildings and plants prior to purchase. The Equipment shall under no circumstances be used for a purpose contrary to the spirit of the Program.

## 2. GENERAL PROVISIONS

This is a loan agreement (hereinafter referred to as "Agreement") between the party requesting the diagnostic equipment (hereinafter referred to as "Loanee") and UT-Battelle, LLC (hereinafter referred to as "UT-Battelle"), a limited liability company organized and existing under the laws of Tennessee, having a business address of 1 Bethel Valley Road, Oak Ridge, TN, collectively referred to herein as "Party" or "Parties." Under the terms and conditions herein, UT-Battelle shall furnish to Loanee the Equipment for the purposes identified in section 1 above. Except as provided for in Section 14 of this Agreement, the Equipment shall be furnished to the Loanee at no cost to UT-Battelle and shall be used only by the Loanee or by authorized agents, employees or subcontractors of the Loanee.

## 3. EQUIPMENT LOAN REQUEST PROCESS

Equipment shall be requested by completing and signing the form on page 7 of this Agreement and identifying the Equipment to be received on the Instrument Check-out List on page 8 et seq.

The completed form and Instrument Check-Out List shall be sent to the Field Validation and Diagnostic Equipment Program manager Daryl Cox via [BPEquipment@ornl.gov](mailto:BPEquipment@ornl.gov). UT-Battelle will endeavor to confirm receipt of the completed form and Instrument Check-Out List within two business days.

## 4. PROPERTY RIGHTS

Unless otherwise agreed in writing by the Parties, the Equipment shall at all times remain and be the sole and exclusive property of UT-Battelle, and Loanee shall have no right of property therein, but only the right to use the Equipment according to terms and conditions specified herein. Loanee shall not allow any liens, charges or

encumbrances on the Equipment and will not further loan or transfer the property to a third-party without the express written permission of UT-Battelle.

To the extent applicable, Loanee will not make any changes or modifications to the Equipment unless prior written approval of UT-Battelle is obtained. Loanee will only use the Equipment for the purposes specified in the Agreement unless prior written approval of UT-Battelle is obtained.

## **5. DELIVERY AND RETURN**

After receipt has been confirmed according to Section 3 of this Agreement and under the condition that the Equipment is available, the Equipment and a return label will be sent for shipping or prepared for pick up within two weeks (hereinafter referred to as "Delivery Time"). If UT-Battelle is unable to ship or prepare the Equipment for pick up within the Delivery Time, Loanee will be notified of a potential later delivery date. Prior to or upon termination or expiration of the Agreement, Loanee will return the Equipment to UT-Battelle to the address indicated on the return label.

## **6. INSTRUMENT LOSS OR DAMAGE**

Loanee will use all reasonable efforts to safeguard the Equipment. If any Equipment is lost or damaged while in possession of the Loanee, Loanee agrees to immediately notify the Field Validation and Diagnostic Equipment Program manager by email at the address provided in in Section 3 above. Loanee shall replace lost or damaged Equipment with replacement equipment of the same make and model. If replacement equipment is not available on the market, the replacement equipment having the same or better specifications from well-known manufactures will be acceptable.

## **7. DISCLAIMER**

Loanee hereby acknowledges that it is being furnished testing equipment without any charge for its use. ACCORDINGLY, ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE DISCLAIMED BY UT-BATTELLE.

UT-Battelle shall have no liability to Loanee or any other person for any claim, loss, damage or expense of any kind caused by the use or performance of the Equipment, or any loss of business or profits or other consequential or indirect damage. Loanee agrees to indemnify UT-Battelle and the U.S. Government for all damages, costs, and expenses, including attorney's fees, arising from the personal injury or property damage occurring as a result of the making, using, or selling of a product process or service by or on behalf of which was derived from the Equipment under this agreement.

## **8. LOAN PERIOD**

The loan period of this Agreement shall commence on the date of acceptance by Loanee and expire upon the earlier of its termination as provided in Section 9 below or two weeks following the date of acceptance of the Equipment by the Loanee. UT-Battelle may agree to a longer loan period (up to four weeks) provided the Loanee submit a request by email addressed to the Field Validation and Diagnostic Equipment Program manager

indicated in Section 3 upon submission of this application, which longer term shall not be unduly withheld.

Extension of the term may be requested by email prior to the termination of this Agreement. All extensions are at the sole discretion of UT-Battelle.

## 9. TERMINATION

9.1. Either Party may terminate this Agreement during its term by giving notice to the other Party. Notice under this section may be given to UT-Battelle by email to the Field Validation and Diagnostic Equipment Program manager at the address listed in Section 3. Notice under this section may be given to Loanee by email at the contacts in the Instrument User Information.

9.2. In the event of the termination of this Agreement either upon the expiration of its term or its earlier termination, Loanee shall remove the Equipment and shall bear all expenses in connection with removal of the Equipment.

## 10. COMPLIANCE LAWS & EXPORT

The Parties agree to comply with all applicable government laws, regulations and rules with respect to the use, maintenance and operation of the Equipment. This shall include compliance with U.S. export control laws and regulations applicable to the transfer of goods and/or technology.

## 11. SEVERABILITY OF PROVISIONS

Should any part of this Agreement be declared invalid by a court of law, such decisions shall not affect the validity of any remaining portions which shall remain in full force and effect as if the invalid portion was never a part of this Agreement when it was executed. Should the severance of any such part of this Agreement materially affect any other rights and obligations of the parties hereunder, the parties hereto will negotiate in good faith to amend this Agreement in a manner satisfactory to the parties.

## 12. NON-ASSIGNABILITY

Neither party hereto shall, directly or indirectly, assign or purport to assign this Agreement or any of its rights and obligations in whole or in part to any third party without the prior written consent of the other party. Notwithstanding the foregoing, UT-Battelle shall have the right to assign this agreement to the Department of Energy (DOE), or its designee.

## 13. AMENDMENT

This Agreement shall not be amended, modified or altered, except in writing, duly accepted and executed by both parties.

## 14. COST OF SHIPPING

The cost of shipping to the Loanee and the return label shall be borne by UT-Battelle on all Equipment.

## 15. GOVERNING LAW

This Agreement shall be governed by, and construed in accordance with, the laws of the State of Tennessee.

**16. ENTIRE AGREEMENT**

This Agreement constitutes the entire agreement and understanding of the parties hereto, and no representations or promises have been made that are not fully set forth herein.

**17. TRANSFER OF THIS AGREEMENT**

This Agreement may be transferred to DOE or its designee upon termination of UT-Battelle's Prime Contract with DOE.

**18. MISCELLANEOUS****18.1. USER'S MANUAL AND REQUIRED SOFTWARE**

Some tools may arrive with the user's manual and the required software. Loanee may be required to visit the Equipment manufacturers' website to download the desired user's manual and the necessary software.

Limited technical assistance may be provided at UT-Battelle's discretion on selecting and using the Equipment. However, the Loanee will have the ultimate responsibility to ensure that the Equipment is suitable for its intended purpose and to guarantee its proper use. Videos and webinars showing the proper use and care of the Equipment may be made available.

**ATTACHMENT 1**
**INSTRUMENTS**

The following instruments are currently available and can be used to collect data on energy systems or the building envelope.

<b>Instrument</b>	<b>Application</b>
Anemometer	Measure air flow and help quantify leakage around seals (process heat, building envelope).
Combustion Analyzer	Quantify the amount of excess oxygen in boiler/combustion process exhaust.
Conductivity Meter	Quantify the amount of undissolved solids in boiler blowdown.
Current Transformer	Help quantify an actual change in the electrical consumption of a component or system.
Digital Manometer	When used with pitot tubes, digital manometers can help determine air flow rates in fan systems or ductwork.
Digital Psychrometer	Used to determine the amount of water in the air (humidity).
Digital Thermometer	When combined with a thermocouple this is useful for determining process temperatures.
HOBO Data Logger	When combined with the accessories below, the data logger is used to determine trends in non-steady state systems: current transformer - clamp-on; current transformer - split core; pressure transducer; temperature/RH sensor.
Infrared Camera	Useful for evaluating structures, door seals, insulation, oven hot spots, etc.
Infrared Thermometer	An infrared thermometer can be useful for non-contact temperature measurements for both manufacturing processes and building envelope applications.
Laser Distance Meter	Measures straight line distances when traditional tape measurement is impractical or not possible
Light Meter	Used to determine the brightness in work areas to compare to lighting standards/need.
Pitot Tube	Measure fluid flow velocity by using the difference between the total and static pressures.
Power Logger	Used for logging power in low voltage (<600 V) 1-Phase or 3-Phase electrical components such as pumps, fans, and compressors.
Pressure Transducer	Pressure transducers are most frequently used for compressed air and pumping systems.
Pyrometer	Measures the temperature in high temperature application such as kilns, furnaces, and ovens.
Sonic Imager	Creates a visual sound map to locate and identify compressed air leaks.
Strobe Tachometer	A strobe tachometer is a non-contact method for determining the rotating speed of a shaft (motors, pumps, fans).
Temp/RH Logger	Used to record the indoor temperature/relative humidity of conditioned spaces over time.
Thermocouple	Used to measure temperature for various applications.
Thermocouple logger	Used to record thermocouple output over time.

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Time-of-use Logger	Used for logging starts and stops of equipment with intermittent duty cycles such as sump pumps, vent fans, refrigeration units, etc.
Ultrasonic Flow Meter	Used to measure the flow rate in fluid systems without breaking the pressure boundary.
Ultrasonic Leak Detector	Used to identify leaks in compressed air or steam systems.

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**INSTRUMENT USER INFORMATION**

Please send this Form with your signature to Field Validation and Diagnostic Equipment Program manager  
BPEquipment@ornl.gov

**Company  
Name**

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**Shipping  
Address**

*Plant Name*

*Address*

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*City*

*State*

*Zip*

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**Contacts**

*Name*

*Phone*

*Email*

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*Name*

*Phone*

*Email*

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**Dates  
Requested**

**From:**

**To:**

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**Performance Parameters / Environment / Installation (Please provide a brief description):**

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**AGREEMENT OF TERMS**

By signing this document, the Loanee agrees to the terms and conditions specified above and understands that the Equipment as defined above shall be used properly according to user’s manual for the specific applications. The signatory is responsible for instrument loss or damage according to the terms of this Agreement. The signee also assumes the responsibility of returning the loaned instruments before the loan period expires.

Print Name/Company

Signature

Date

**INSTRUMENT CHECK OUT LIST**

Please mark the needed instruments and fill out the requested quantity in below form.

Description	Manufacturer	Model	Range	Units	Quantity	
					Requested	Total
<b>Combustion analysis</b>						
<input type="checkbox"/> Combustion analyzer	Bacharach	PCA3			of	1
<input type="checkbox"/> Combustion analyzer	Testo	340			of	2
<b>Data logging</b>						
<input type="checkbox"/> HOBO Data logger	Onset Computer Corp	H22-001			of	20
<input type="checkbox"/> HOBO Analog input module	Onset Computer Corp	S-FS-CVIA	0–20 mA or 0–20V DC		of	22
<input type="checkbox"/> HOBO TRMS Current Module	Onset Computer Corp	S-FS-TRMSA			of	16
<input type="checkbox"/> Temperature/RH sensor–2M cable	Onset Computer Corp	S-THB-M002			of	6
<input type="checkbox"/> Temperature/RH sensor–8M cable	Onset Computer Corp	S-THB-M008			of	6
<input type="checkbox"/> CT – Split core	Magnelab	SCT-0750-005	0-5	amps	of	8
<input type="checkbox"/> CT – Split core	Magnelab	SCT-1250-100	0-100	amps	of	4
<input type="checkbox"/> CT – Split core	Magnelab	SCT-1250-200	0-200	amps	of	4
<input type="checkbox"/> CT – Split core	Magnelab	SCT-1250-600	0-600	amps	of	2
<input type="checkbox"/> CT – Split core	Magnelab	SCT-2000-1000	0-1000	amps	of	3
<input type="checkbox"/> CT-Split core	Continental Control Systems	Accu-CT	0-250	amps	of	6
<input type="checkbox"/> Current transformer–Coil	Accuenergy	RCT24-1000	0-1000	amps	of	4
<input type="checkbox"/> Current transformer	Accuenergy	H138-600	0-600	amps	of	6
<input type="checkbox"/> Data Shuttle	Onset Computer Corp	U-DT-1			of	3
<input type="checkbox"/> HOBO Data logger	Onset Computer Corp	UX120-006M			of	6
<input type="checkbox"/> CT – Split core	Onset Computer Corp	CTV-A	0-20	amps	of	6
<input type="checkbox"/> CT – Split core	Onset Computer Corp	CTV-C	0-100	amps	of	4
<input type="checkbox"/> CT – Split core	Onset Computer Corp	CTV-D	0-200	amps	of	6



	Description	Manufacturer	Model	Range	Units	Quantity	
						Requested	Total
<input type="checkbox"/>	CT – Split core	Onset Computer Corp	CTV-E	0-600	amps	of	2
<i>Pressure transducers must be paired with a data logger</i>							
<input type="checkbox"/>	Pressure transducer	Ashcroft	G1	0-200	psig	of	4
<input type="checkbox"/>	Pressure transducer	Ashcroft	G2	0-200	psig	of	20
<input type="checkbox"/>	Pressure transducer	Ashcroft	G2	0-300	psig	of	4
<input type="checkbox"/>	Pressure transducer	Ashcroft	K1	0-150	psig	of	4
<input type="checkbox"/>	Pressure transducer	Ashcroft	K1	VAC-60	psig	of	1
<b>Electric Power</b>							
<input type="checkbox"/>	Power logger–3 phase	Dent Instruments	ElitePro XC	80-600V / 0-5000A		of	4
<input type="checkbox"/>	Power logger–3 phase	Fluke	1734	Cat III		of	1
<b>Flow measurement–Air</b>							
<input type="checkbox"/>	Anemometer–Hot wire	Testo	425			of	1
<input type="checkbox"/>	Anemometer–Vane	Omega	HHF91			of	1
<input type="checkbox"/>	Digital Manometer	Dwyer	475-000-FM	0-1.0	in wc	of	1
<input type="checkbox"/>	Digital Manometer	Dwyer	478A-0	-4.00 – 4.0	in wc	of	1
<input type="checkbox"/>	Digital Manometer	Dwyer	475-2-FM	0–40	in wc	of	1
<input type="checkbox"/>	Digital Manometer	Dwyer	478A	-60 – +60	in wc	of	1
<input type="checkbox"/>	Incline manometer	Dwyer	250.5-AF	-0.1–1	inch	of	2
<input type="checkbox"/>	Pitot tube–12"	Dwyer	160-12			of	1
<input type="checkbox"/>	Pitot tube–18"	Dwyer	160-18			of	1
<input type="checkbox"/>	Pitot tube–36"	Dwyer	160-36			of	1
<input type="checkbox"/>	Pitot tube–48"	Dwyer	160-48			of	1
<b>Flow measurement–Compressed air</b>							
<input type="checkbox"/>	Compressed air flow meter	CDI	5200	0-100	SCFM	of	2
<input type="checkbox"/>	Ultrasonic Gas Flow Meter	GE Panametrics	PT878GC			of	1

Description	Manufacturer	Model	Range	Units	Quantity	
					Requested	Total
<b>Flow measurement–Water</b>						
<input type="checkbox"/> Ultrasonic Flow meter	Fuji	FSC			of	1
<input type="checkbox"/> Ultrasonic Flow meter	GE Panametrics	PT900			of	1
<b>Thermal measurement</b>						
<input type="checkbox"/> Digital thermometer	Omega	HH506RA			of	2
<input type="checkbox"/> Thermocouple	Omega	KHXL-14G-RSC-24			of	2
<input type="checkbox"/> Thermocouple	Omega	KHXL-316G-RSC-18			of	1
<input type="checkbox"/> Thermocouple	Omega	XCIB-4-6-10			of	2
<input type="checkbox"/> Thermocouple	Omega	KHXL-18G-RSC-12			of	1
<input type="checkbox"/> Thermocouple	Omega	KHXL-14G-RSC-18			of	1
<input type="checkbox"/> Pyrometer	Ametek Land	160L	200 - 1400	°C	of	1
<input type="checkbox"/> IR Thermometer	Fluke	561			of	1
<input type="checkbox"/> IR Thermometer	Fluke	566			of	1
<b>Thermal imaging</b>						
<input type="checkbox"/> IR Camera	Flir	E40			of	1
<b>Miscellaneous</b>						
<input type="checkbox"/> Digital Psychrometer	Yellow Jacket	69008	0–100% RH		of	1
<input type="checkbox"/> Laser Distance Meter	Fluke	414D	0-165	ft	of	1
<input type="checkbox"/> Light Meter	Testo	540			of	1
<input type="checkbox"/> Conductivity meter	Amprobe	WT-60			of	1
<input type="checkbox"/> Acoustic Imager	Fluke	li900				1
<input type="checkbox"/> Acoustic Imager	Prosaris	OL1				1
<input type="checkbox"/> Strobe tachometer	Monarch	Palm Strobe			of	1
<input type="checkbox"/> Strobe tachometer	Monarch	DB+			of	1
<input type="checkbox"/> Time-of-use logger	Dent Instruments	MAGlogger 4G			of	2
<input type="checkbox"/> Ultrasonic leak detector	ue Systems	Ultraprobe 100			of	1

<input type="checkbox"/>	Ultrasonic leak detector	Bacharach	Tru Pointe 1100		of	1
<input type="checkbox"/>	Temperature/RH logger	Onset Computer	UX100-011A		of	3

						<b>Quantity</b>	
<b>Description</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Range</b>	<b>Units</b>	<b>Requested</b>	<b>Total</b>	
<input type="checkbox"/>	Thermocouple logger	Onset Computer	UX100-014M		of	2	

**Treasure Hunt Kit**

<b>Description</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Range</b>	<b>Units</b>	<b>Quantity</b>
Clamp meter	Fluke	345PQ			1
Conductivity meter	REED	SD-4307			1
CT – Split core	Onset Computer Corp	CTV-A	0-20	Amps	2
CT – Split core	Onset Computer Corp	CTV-C	0-100	Amps	2
CT – Split core	Onset Computer Corp	CTV-D	0-200	Amps	2
CT – Split core	Onset Computer Corp	CTV-E	0-600	Amps	2
Digital thermometer	Omega	HH506RA			1
IR Camera	Flir	E5			1
HOBO Data logger	Onset Computer Corp	UX120-006M			6
Plug load logger	Onset Computer Corp	U120-018			2
Laser Distance Meter	Fluke	414D	0-165	ft	1
Ultrasonic leak detector	Bacharach	Tru Pointe 1100			1
Light meter	Testo	540			1
Pressure transducer	Ashcroft	G2	0-200	psig	2
Thermocouple	Omega	KHXL-18G-RSC-12			2
Vane anemometer	Dwyer	9671			1
IR thermometer	Fluke	566			1
Acoustic Imager	Prosaris	OL1			1