

# DIGITAL TRUEFLOW<sup>®</sup> HVAC SYSTEM AIRFLOW METER



**OVERVIEW**

# Digital TrueFlow® Solution

## The first easy-to-use air system analysis tool

Provides reliable measurements and guidance on how to address comfort issues - with a simple customer-friendly report.

## For Sales

Add the analysis to your bids to differentiate.

## For Installers

Recognized by ANSI / ACCA / RESNET 310 for grading of new installs.

## For Service Techs

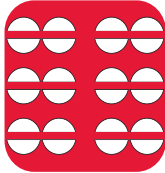
Comprehensive analysis for service techs to diagnose and resolve air flow related issues with confidence.



# How Digital TrueFlow® Works

## TrueFlow® App

Follow step-by-step process to complete flow measurement or pressure & flow analysis via free TrueFlow® App (iOS, Android).



TrueFlow



## Equipment

Collect data from Digital TrueFlow® grid and DG-8 digital pressure gauge via Bluetooth. Digital TrueFlow® is also compatible with the DG-1000 pressure & flow gauge.



+

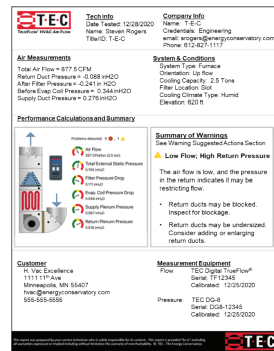
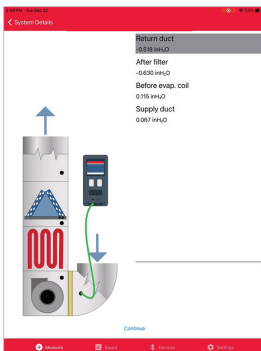


or



## Automated Reports

Customer-friendly report helps you understand system performance and explain your proposed solution to homeowners.



# Digital TrueFlow® Solution

## Basic Operation

### Download TEC TrueFlow® App for iOS or Android

#### Step 1: Turn on the HVAC System

- Typically design conditions are high cool.
- Allow to run for 10 minutes to ensure system is running at proper conditions.

#### Step 2: Turn on the TrueFlow® Grid and DG-8

#### Step 3: Follow the TrueFlow® App Step-by-Step Instructions

- Launch the TrueFlow® app on your iOS or Android device.
- Enter type of measurement
- Establish Bluetooth® connection to your Digital TrueFlow® and DG-8.
- Enter furnace or air handler type
- Enter system orientation
- Enter system details

#### Step 4: Measure Normal Operating System Pressure

- Drill 1/4" hole in locations indicated in the app\*
- Insert static pressure probe
- Leave probe in the supply plenum for testing

#### Step 5: Turn HVAC System Off

#### Step 6: Replace HVAC System Air Filter with Digital TrueFlow® Grid


#### Step 7: Turn HVAC System On

#### Step 8: Measure Airflow following the TrueFlow® App Instructions

\*It is the responsibility of the technician to ensure an understanding of the specific equipment layout and determine a safe location for drilling ports in the HVAC equipment

# Digital TrueFlow® Reports

## Air Flow & Static Pressure Report



**Tech info**  
Name: Stephen Jones  
ID: 124  
Title: Lincoln Tech  
Credential: NATE 505  
Email: sjones@yourflow.com

**Date tested:** 5/29/2021

**Company info**  
Name: Your HVAC, Inc.  
Email: info@yourflow.com  
Phone: (800) 555-5555


**True Flow System Air Flow and Static Pressure Analysis**  
**Air measurements**  
Total air flow = 1052 CFM  
Return duct = 0.363 inH<sub>2</sub>O  
After filter = 0.346 inH<sub>2</sub>O  
Before evaporator coil = 2.048 inH<sub>2</sub>O  
Supply duct = 0.111 inH<sub>2</sub>O

**System & conditions**  
System Type: Fuel  
Orientation: Upright  
Coiling Capacity: 2.5  
Filter Location: Up/Out  
Coiling Climate Type: Humid  
Elevation: 237 ft

**Summary calculations**  
Flow: 421 CFM/min  
TESP: 0.382 inH<sub>2</sub>O  
Filter Drop: 0.207 inH<sub>2</sub>O  
Evap. Coil Drop: 1.133 inH<sub>2</sub>O  
Supply Plenum: 0.111 inH<sub>2</sub>O  
Return Plenum: 0.145 inH<sub>2</sub>O

**Summary of Warnings**  
Flow is OK, high filter drop

**Customer**  
Name: Processa Buttecup  
Phone: (505) 555-1212  
Email: buttecup@processandria.com  
Address: 2012 21st Ave S, Minneapolis MN 55407 United States



**Test Equipment**  
Flow:  
TrueFlow®  
Serial: TP2-7  
Calibrated: 4/27/2021


**Pressure:**  
DSB  
Serial: DCS-55  
Calibrated: 10/13/2020

**Warning Information - Suggested Actions**

- Flow is OK, high filter drop
  - \* Air Filter is OK, but the high pressure drop may still cause high energy consumption or decreased indoor air quality for equipment with a constant air flow ECM motor
  - \* Filter may be dirty. Replace the filter
  - \* Filter may may be too small for the equipment. Consider adding a larger or deeper filter bank.
  - \* Filter may be incompatible. Consider a filter with a lower MERV rating to replace the filter with a larger or deeper filter.

**Additional Comments**  
Recommended a larger filter bank

**Equipment Photos**  
5/20/2021 2:05:07 PM



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## Air Flow Report



**Tech info**  
Name: Stephen Jones  
ID: 124  
Title: Lincoln Tech  
Credential: NATE 505  
Email: sjones@yourflow.com

**Date tested:** 5/29/2021

**Company info**  
Name: Your HVAC, Inc.  
Email: info@yourflow.com  
Phone: (800) 555-5555


**True Flow System Air Flow Analysis**  
**Air measurements**  
Total Air Flow = 1052 CFM  
Supply duct = 0.102 inH<sub>2</sub>O

**System & conditions**  
System Type: Fuel  
Orientation: Upright  
Coiling Capacity: 2.5  
Filter Location: Up/Out  
Coiling Climate Type: Humid  
Elevation: 235 ft

**Summary calculations**  
Flow: 423 CFM/min

**Summary of Warnings**  
No warnings.


**Customer**  
Name: Processa Buttecup  
Phone: (505) 555-1212  
Email: buttecup@processandria.com  
Address: 2012 21st Ave S, Minneapolis MN 55407 United States



**Test Equipment**  
Flow:  
TrueFlow®  
Serial: TP2-7  
Calibrated: 4/27/2021

**Pressure:**  
DSB  
Serial: DCS-55  
Calibrated: 10/13/2020

**Equipment Photos**  
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## RESNET / ACCA - 310 Report



**Tech info**  
Name: Stephen Jones  
ID: 124  
Title: Lincoln Tech  
Credential: NATE 505  
Email: sjones@yourflow.com

**Date tested:** 5/29/2021

**Company info**  
Name: Your HVAC, Inc.  
Email: info@yourflow.com  
Phone: (800) 555-5555

**Air measurements**  
Total Air Flow = 1052 CFM  
Supply duct = 0.101 inH<sub>2</sub>O

**System & conditions**  
System Type: Fuel  
Orientation: Upright  
Coiling Capacity: 2.5  
Filter Location: Up/Out  
Coiling Climate Type: Humid  
Elevation: 237 ft  
Design air Flow: 1025 CFM

**Summary calculations**  
Total Air Flow: 1052 CFM

**RESNET / ACCA - 310**

**GRADE I**

Grade Designation	Percent Deviation
I	±0 and >-15% and <+15%
II	>-15% and >-25% and <+15% and <+25%
III	>-25% and >+25%

**Customer**  
Name: Processa Buttecup  
Phone: (505) 555-1212  
Email: buttecup@processandria.com  
Address: 2012 21st Ave S, Minneapolis MN 55407 United States



**Test Equipment**  
Flow:  
TrueFlow®  
Serial: TP2-7  
Calibrated: 4/27/2021

**Pressure:**  
DSB  
Serial: DCS-55  
Calibrated: 10/13/2020

**Equipment Photos**  
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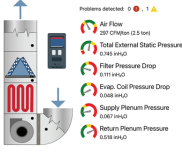


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# Where to use the Digital TrueFlow® Solution

The Digital TrueFlow® is intended to simplify analysis of HVAC Air system performance by offering a structured process and consistent measurements you can have confidence in.

	<b>TechInfo</b> Date Tested: 12/28/2020 Name: Steven Rogers Title/ID: T-E-C	<b>Company Info</b> Name: T-E-C Credentials: Engineering email: srogers@energyconservatory.com Phone: 612-567-1117
<b>Air Measurements</b> Total Air Flow = 877.5 CFM Return Duct Pressure = -0.088 inH2O After Filter Pressure = -0.241 in H2O Before Evap Coil Pressure = -0.344 inH2O Supply Duct Pressure = 0.276 inH2O	<b>System &amp; Conditions</b> System Type: Furnace Orientation: Up flow Cooling Capacity: 2.5 Tons Filter Location: Slot Cooling Climate Type: Humid Elevation: 520 ft	
<b>Performance Calculations and Summary</b> 	<b>Summary of Warnings</b> See Warning Suggested Actions Section <b>▲ Low Flow: High Return Pressure</b> The air flow is low, and the pressure in the return indicates it may be restricting flow. <ul style="list-style-type: none"><li>Return ducts may be blocked. Inspect for blockage.</li><li>Return ducts may be undersized. Consider adding or enlarging return ducts.</li></ul>	
<b>Customer</b> H. Vac Excellence 1111 11th Ave Minneapolis, MN 55407 hvac@energyconservatory.com 555-555-5555	<b>Measurement Equipment</b> Flow: TEC Digital TrueFlow® Serial: 1F12345 Calibrated: 12/25/2020 Pressure: TEC DG-8 Serial: DGB 12345 Calibrated: 12/25/2020	
<small>This report was prepared by your service technician using a publicly available, for sale, certified, and approved instrument in accordance with the requirements of ANSI/ASHRAE 105-2017 (2015 Edition) - Standard for the Calibration of Instruments Used for Measuring Air Flow and Pressure. © TEC, The Energy Conservatory</small>		



The process is driven by the TrueFlow® App, which connects over Bluetooth® to both the TrueFlow® Grid and the DG-8 pressure gauge. The app will help you set up the system information, take the required measurements and provide an initial diagnosis of the system performance – including the airflow, pressures in the system, and any key areas to investigate. The results are displayed immediately and can be exported as data or a PDF report – designed for both internal use and for presenting to homeowners.



# Digital TrueFlow® Solution Components

## The Digital TrueFlow® Solution Full Kit includes:

- Digital TrueFlow® Grid
- 8 filter size adapter plates
- DG-8 Digital Pressure Gauge
- USB 2.0 type-C cable
- USB type-C power adapter
- Magnetic static pressure probe
- 5 ft blue hose
- 5 ft green hose
- Inline hose connector
- Static pressure port plugs
- DG-8 neoprene sleeve
- DG-8 accessory bag
- TrueFlow® carrying case
- TrueFlow App (Free download for iOS & Android)

Note: Digital TrueFlow® Grid Kit (not solution) is also available. It does not include the DG-8 Digital Pressure Gauge, sleeve or accessory bag and is designed for users who already own a DG-8 or DG-1000.

## TrueFlow® Filter Adapters

TrueFlow® is designed to be used with TrueFlow® filter adapters to deliver the best measurement results. The TrueFlow® grid snaps into the grid for fitting the filter location – whether a grille or a slot. There are 8 adapter sizes matching the 7 most common filter sizes, and an option for a universal (25" x 25" cut to fit in the field) adapter.

## TrueFlow® Filter Adapter Sizes

14 x 20	16 x 20	16 x 25	20 x 20
20 x 24	20 x 25	24 x 24	Universal (25" x 25" cut-to-fit)

## Full Kits

When you select the Digital TrueFlow® Full Kit, you get all 8 adapters, which includes the 7 most common filter sizes, as well as a cut-to-fit 25 x 25 adapter which can be cut in the field.

## Custom Kits

You can also order a custom kit, which allows you to select between 1 and 8 adapters you would like included to match the filters you work on.

# Digital TrueFlow<sup>®</sup> Overview

## Powering on and off the Digital TrueFlow<sup>®</sup>

To power on the Digital TrueFlow<sup>®</sup> press and hold the power button for 3 seconds until button flashes green. To power off the Digital TrueFlow<sup>®</sup> press and hold the power button for 3 seconds until button flashes red.

## Charging instructions

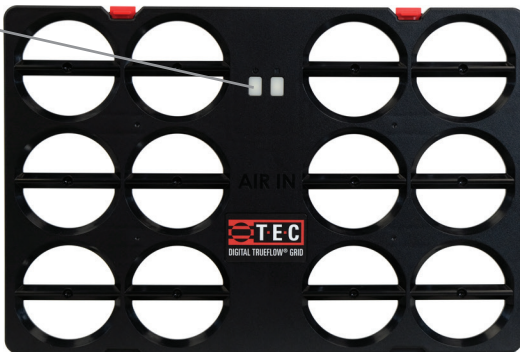
The Digital TrueFlow<sup>®</sup> battery is charged through its USB-C receptacle. When using the included USB-C power supply and USB-C cable, the Digital TrueFlow<sup>®</sup> will charge from empty to 100% in approximately 2 hours. When charging the Digital TrueFlow<sup>®</sup> using an aftermarket USB-A to USB-C cable it will take approximately 5 hours to fully charge from empty.

When the Digital TrueFlow<sup>®</sup> is connected to a power source, the green LED light next to the USB-C port will be lit. While the battery is actively charging the orange LED light located on the opposite side of the USB-C port will be lit as well. Once fully charged, the orange LED will turn off.

The Digital TrueFlow<sup>®</sup> battery should only be charged between 32° F and 115° F (0° C and 45° C).

TEC recommends using the supplied USB-C cable and power supply for optimal charging.

Power button



Orange battery charging light

USB-C Port

Green power connection light





## Battery information

The Digital TrueFlow® uses a single protected lithium-ion polymer battery that is rechargeable, but is not user-replaceable.

Battery run time is typically 24 hours. All batteries self-discharge over time; TEC recommends charging the battery using the included fast charger at least once every three months regardless of battery level.

## Temperature thresholds

The Digital TrueFlow® should be stored in a dry place with temperature between 32° F and 77° F (0° C and 25° C). Operating temperatures are between 32° F and 115° F (0° C and 45° C).

## Calibration information

The Digital TrueFlow® should be calibrated at the TEC calibration lab once every four years. The date of calibration can be found on the label on the back of the gauge. Visit the TEC website for more information on arranging calibration service.

## Digital TrueFlow® specifications

COMPONENT	SPECIFICATIONS
Flow Accuracy <sup>1</sup>	+/- 5%
Digital Communication	Bluetooth Low Energy, USB 2.0
Flow Range	300 to 1600 CFM (cubic feet per minute)
Power	Lithium-Ion Polymer Rechargeable Battery 2,000 mAh with USB-C® charger/power adapter included
Battery Life	Typically over 24 hours of continuous use
Auto-off	30 minutes
Grid Dimensions	12 x 18 x 0.75 inches
Grid Weight	2.1 Lbs. (952 g)
Adapter Weight	Varies by size, approximately 1.5 Lbs. (680 g)
Recommended Calibration Interval	48 months
Operating Temperature Range	32° F to 115° F (0° C to 45° C)
Storage Temperature Range <sup>2</sup>	Less than one month: 15° F to 115° F (-10° C to 45° C) One month up to one year: 32° F to 77° F (0° C to 25° C)

<sup>1</sup> In standard installation with no obstruction 2 inches downstream and 6 inches upstream of Digital TrueFlow® Grid.

<sup>2</sup> Storage limits are based on batteries. Storing outside these limits may require battery replacement.

## THE ENERGY CONSERVATORY WARRANTY

### EXPRESS LIMITED WARRANTY

Seller warrants that this product, under normal use and service as described in the operator's manual, shall be free from defects in workmanship and material for a period of 24 months, or such shorter length of time as may be specified in the operator's manual, from the date of shipment to the Customer.

### LIMITATION OF WARRANTY AND LIABILITY

This limited warranty set forth above is subject to the following exclusions:

- With respect to any repair services rendered, Seller warrants that the parts repaired or replaced will be free from defects in workmanship and material, under normal use, for a period of 90 days from the date of shipment to the Purchaser.
- Seller does not provide any warranty on finished goods manufactured by others. Only the original manufacturer's warranty applies.
- Unless specifically authorized in a separate writing, Seller makes no warranty with respect to, and shall have no liability in connection with, any goods which are incorporated into other products or equipment by the Purchaser.
- All products returned under warranty shall be at the Purchaser's risk of loss. The Purchaser is responsible for all shipping charges to return the product to The Energy Conservatory. The Energy Conservatory will be responsible for return standard ground shipping charges. The Customer may request and pay for the added cost of expedited return shipping.

The foregoing warranty is in lieu of all other warranties and is subject to the conditions and limitations stated herein. No other express or implied warranty IS PROVIDED, AND THE SELLER DISCLAIMS ANY IMPLIED WARRANTY OF FITNESS for particular purpose or merchantability.

The exclusive remedy of the purchaser FOR ANY BREACH OF WARRANTY shall be the return of the product to the factory or designated location for repair or replacement, or, at the option of The Energy Conservatory, refund of the purchase price.

The Energy Conservatory's maximum liability for any and all losses, injuries or damages (regardless of whether such claims are based on contract, negligence, strict liability or other tort) shall be the purchase price paid for the products. In no event shall the Seller be liable for any special, incidental or consequential damages. The Energy Conservatory shall not be responsible for installation, dismantling, reassembly or reinstallation costs or charges. No action, regardless of form, may be brought against the Seller more than one year after the cause of action has accrued.

The Customer is deemed to have accepted the terms of this Limitation of Warranty and Liability, which contains the complete and exclusive limited warranty of the Seller. This Limitation of Warranty and Liability may not be amended or modified, nor may any of its terms be waived except by a writing signed by an authorized representative of the Seller.

### TO ARRANGE A REPAIR

Please visit our website ([www.energyconservatory.com/calibration-repair](http://www.energyconservatory.com/calibration-repair)) before sending any product back for repair or to inquire about warranty coverage. All products returned for repair should include a return shipping address, name and phone number of a contact person concerning this repair, and the purchase date of the equipment.

### **Safety, warnings and troubleshooting information**

- Follow all safety instructions provided when used with any TEC products.
- Do not operate the gauge if any liquid gets inside the gauge and contact TEC
- A hard reset may be performed by holding down both silicone buttons until the gauge powers off. This is only advised if holding the power button alone does not power off the gauge or gauge is unresponsive.

### **Lithium Ion battery safety and warnings**

- The battery should only be charged in conditions between 32° and 115° Fahrenheit (0° and 45° Celsius).
- Do not leave the gauge in direct sunlight or in an area heated by sunlight. The battery could generate heat, smoke or flames.
- Do not use the battery when there is rust present, the battery has a bad smell or if the battery is damaged in any other way.
- Keep the battery out of the reach of children and animals.
- If fluid from the battery leaks out and makes contact with skin, wash with soap and water. The fluid may cause irritation. If this happens please see a doctor immediately.
- Do not expose the battery to extreme heat, flames or liquids.
- Do not modify or disassemble the battery as this could result in leakage or explosion.

# Digital TrueFlow® Offering Summary

I already own a DG-8 or DG-1000

I do not own a DG-8 or DG-1000

Digital TrueFlow® Grid

Digital TrueFlow® Solution

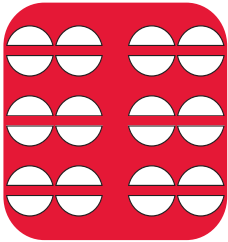
**Digital TrueFlow® Grid Full Kit**

- Digital TrueFlow® Grid
- All (8) filter adapters, including cut-to-fit\*
- Accessories & Carrying Bag

**Digital TrueFlow® Solution Full Kit**

- Digital TrueFlow® Grid
- DG-8 Digital Pressure Gauge
- All (8) filter adapters, including cut-to-fit\*
- Accessories & Carrying Bag

\*Cut-to-fit adapter ships to fit a 25x25 filter size and can be trimmed to smaller sizes.



TrueFlow

**TrueFlow® App**

The Digital TrueFlow® Grid, DG-8 or DG-1000 connect by Bluetooth® to the free TrueFlow® app to compile data and complete air system performance analyses. The TrueFlow® app is available for free download on iOS and Android.

**Other T-E-C products available on [energyconservatory.com](https://energyconservatory.com)**

- Minneapolis Blower Door™
- Minneapolis DuctBlaster
- Exhaust Fan Flow Meter
- Pressure Pan
- DG-1000 Digital Pressure & Flow Gauge
- DG-8 Digital Pressure Gauge
- TEC Fog Puffer™



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Minneapolis, Minnesota 55407

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Fax: (612) 827-1051

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