What is the Problem?

The industry today.

HVAC TECH SHORTAGE
Conservative estimates put the industry HVAC tech shortage at 20,000.

OVER 40% of newly installed residential systems are not installed correctly.

OVER 70% of home systems are inefficient or heading for a breakdown.

UNDER 10% of maintenance agreement systems are properly serviced.

A smarter solution.

SMART HVAC WITH 24/7 MONITORING.

How it works

SMART SENSORS OFFER A TOTAL SENSE OF COMFORT. Custom sensors gather vital, never-before-seen information every time a system runs. The data is sent to our monitoring center’s secure cloud over your customer’s home Wi-Fi network.

24/7 MONITORING FOR UNPRECEDENTED INSIGHT. Our team carefully monitors data every time a system runs. In most cases, we detect an issue before it becomes a problem.

STAY IN THE KNOW AND KNOW WHAT TO DO. By sending you and your customers timely communications including system reports, actionable alerts and repair verifications, you differentiate yourself from your competition.
ComfortGuard Hardware Consists of 10 Sensors Plus Data Hub and Optional Gateway

- Steve Cox – VP of Business Development
- Guy Medaris – VP, Sales & Marketing
- Tom Koby – Product Manager
- Scott Valentine – User Experience

- Return Air Temperature
- Supply Air Temperature
- Voltage Current Control Lines
- Data Hub
- Optional WiFi Gateway
- Suction Line Temperature
- Liquid Line Temperature
- Optional Condensate Monitor Accessory
- Optional Outdoor Accessory
- Outdoor Device
- Voltage Current Control Line
Point in Time vs Time Series Measurement

Actionable Alerts

Time Series Data Log
## Diagnostics Landscape

<table>
<thead>
<tr>
<th>Feature</th>
<th>Sensi</th>
<th>Nest/Ecobee</th>
<th>Honeywell</th>
<th>Sensi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runtime</td>
<td>⌚</td>
<td>⌚</td>
<td>⌚</td>
<td>⌚</td>
</tr>
<tr>
<td>Temp Limits</td>
<td>🔥-</td>
<td>🔥-</td>
<td>🔥-</td>
<td>🔥-</td>
</tr>
<tr>
<td>Ignition</td>
<td>🔥</td>
<td>🔥</td>
<td>🔥</td>
<td>🔥</td>
</tr>
<tr>
<td>Airflow</td>
<td>⌨️</td>
<td>🔥</td>
<td>🔥</td>
<td>🔥</td>
</tr>
<tr>
<td>Refrigerant</td>
<td>❄️</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Consumption</td>
<td>⚡️</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ComfortGuard Process

START

Install / Repair

Emerson® Validates

System Clear

Possible Issue

Alert Sent

Emerson® Validates
<table>
<thead>
<tr>
<th>CONTRACTOR</th>
<th>HOMEOWNER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems with today's model</td>
<td>Problem with today's model</td>
</tr>
<tr>
<td>Smart HVAC Benefits</td>
<td>Smart HVAC Benefits</td>
</tr>
</tbody>
</table>

### QUALITY INSTALL
- Difficult to validate proper install
- Callbacks
- No differentiation between contractors
- Instant quality install validation
- Callbacks eliminated
- Increased close rate and average ticket
- Frustration around improper install
- Reduced lifetime of system
- Higher energy cost from poor install
- Assurance of proper install
- Maximize lifetime of system
- Lowest possible energy cost

### MAINTENANCE AGREEMENT
- Most agreements lose money
- Cancellation rates of 20-40%
- Non-revenue-generating truck rolls
- All truck rolls are revenue-generating
- Decrease average time on site
- Increased renewal rates
- Need to schedule two inconvenient in-home visits per year
- Perception of technician pushing repairs and upgrades
- 24/7 monitoring
- In-home visits only when needed
- Trusted transparency on repairs and upgrades
Alerts Received Through ComfortGuard Enable Overall Demand Shaping

EXISTING SEASONAL DEMAND PROBLEMS

- Demand for work
- Lost revenue or overtime required
- Unused resources

SHIFT IN DEMAND WITH COMFORTGUARD

- Shifted work
- Increased capacity

COMFORTGUARD IMPROVES DAILY DISTRIBUTION OF DEMAND

INCLUDES OVERNIGHT ALERTS

PROBLEM DETECTED AND PHONECALL FROM HOMEOWNER

NUMBER OF CALLS/ SERVICE
Typical Customer Experience: Older Equipment

Without ComfortGuard – 73 Minutes onsite

Customer Calls 5:30pm
Arrival 8:30pm
Problem Diagnosed 9:00pm
Repair Complete 9:32pm
Clean Up & Leave 9:43pm

House still hot at bedtime

With ComfortGuard – 43 Minutes onsite

Problem Diagnosed 1:00pm
Arrival 3:00pm
Repair Complete 3:32pm
Clean Up & Leave 3:43pm

House cool before dinner
## Majority of Alert Activity is Predictive, Allowing for Efficient Scheduling and Diagnosis

### ALERT AFTER BREAKDOWN

<table>
<thead>
<tr>
<th>ALERT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Heating</td>
<td>1.9%</td>
</tr>
<tr>
<td>No Cooling</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

### ALERT BEFORE BREAKDOWN

<table>
<thead>
<tr>
<th>ALERT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charge / Refrigerant Issue</td>
<td>5.0%</td>
</tr>
<tr>
<td>Component Breakdown Detected</td>
<td>2.1%</td>
</tr>
<tr>
<td>Component Degradation</td>
<td>1.2%</td>
</tr>
<tr>
<td>Low Efficiency From Baseline</td>
<td>2.1%</td>
</tr>
<tr>
<td>Low Efficiency From Specs</td>
<td>7.1%</td>
</tr>
<tr>
<td>Filter Alert</td>
<td>41.2%</td>
</tr>
<tr>
<td>Intermittent Cooling / Heating Loss</td>
<td>17.7%</td>
</tr>
<tr>
<td>Indoor / Outdoor Air Flow Issue</td>
<td>4.8%</td>
</tr>
<tr>
<td>Start / Trip Problems: AC/HP</td>
<td>3.3%</td>
</tr>
<tr>
<td>Start / Trip Problems: Furnace</td>
<td>9.6%</td>
</tr>
</tbody>
</table>
EPA Knows Installs Are an Issue

ENERGY STAR Verified HVAC Installation (ESVI)

NEARLY HALF OF ALL HVAC SYSTEMS ARE INCORRECTLY INSTALLED.

Choose ENERGY STAR Verified HVAC Installation and be sure your new system is installed correctly.

WHY ENERGY STAR VERIFIED HVAC INSTALLATION?

- BETTER COMFORT
- BETTER QUALITY
- BETTER PERFORMANCE
- BETTER ENERGY SAVINGS

You’ll have real assurance that your new HVAC system has been installed correctly and that the installation has been third-party verified. That means increased comfort, lower energy bills, reduced risk of equipment failure, and much more.

How it works

- Locate a Program
  See if a program is offered in your area.

- Design Your System
  Your contractor will design a system that is right for you and your home.

- Installation Matters
  Your contractor will follow national installation standards to maximize system performance.

- Receive Verification Certificate
  All verified installations earn an ESVI certificate.
The ESVI Program requires that HVAC system installations are verified to meet quality installation standards. These requirements are based on the ANSI / ACCA Standard 5, ensuring that equipment is:

- Correctly sized to meet the home’s needs
- Connected to a well-sealed duct system
- Operating with sufficient airflow
- Installed with the proper amount of refrigerant

ComfortGuard Issued the 1st ESVI Certificate in the Country in Feb 2017
NEW CONSTRUCTION

Electricity

- Indoor Equipment
- Outdoor Equipment
- Charger for Mobile Phone (Recommended)
- Charger for Hotspot (Recommended)

Smart Phone

- iOS Device (Apple)
- Android Device
- Windows phone currently not supported
- This will be used to set up the ComfortGuard device

Cellular Wi-Fi Hotspot

- Most smart phones have a hotspot feature
- Can only do voice and data simultaneously on GSM carriers (AT&T, T-Mobile, Etc)
- Hotspot only required for install verification
Install and Service Verification New Feature Helps to Address New System Install Problems (40% of Installs)

Connectivity

Fan

Heat

Cool
SMART MAINTENANCE

Customer Journey
1. Customer is presented concept

**How it works.**

Custom sensors gather vital, never-before-seen information every time your system runs. The data is sent to our monitoring center’s secure cloud over your home’s Wi-Fi network.

Our team carefully monitors your data every time your system runs. In most cases, we detect an issue before it becomes a problem.

By sending you timely communications including system reports, actionable alerts and repair verifications, you get the real-time insights you need to better manage your HVAC.

**Keeping you in the know.**

- **INSTALL VERIFICATION**
  - Installation done right. You never have to wonder if your system was installed correctly. We will verify your quality installation and send a confirmation to let you know when it’s all systems go.

- **ALERTS**
  - No surprises. If potential issues are detected, we’ll alert you and your contractor immediately with straightforward explanations and recommended actions to prevent problems.

- **SYSTEM REPORTS**
  - Complete system insight. With anytime access to monthly reports, system runtime and operational costs, you can stay in-the-know to proactively maintain and maximize the life of your equipment.

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**Predict. Prevent. Protect.**

Until now there was no easy way to verify if your HVAC system was installed correctly or performing efficiently.

**LOOKING FOR A NEW SYSTEM?**

We provide third-party verification that your new system was installed correctly and meets performance specifications set by the manufacturer. Pay, stay in the know with one year of 24/7 monitoring. So you get the rest of your system from day one and worry-free comfort all year.

**FREE ON ELIGIBLE NEW SYSTEMS + FIRST YEAR OF MONITORING FREE**

**LOOKING TO MAXIMIZE YOUR CURRENT SYSTEM?**

Make your system smart and maximize performance with 24/7 monitoring featuring predictive alerts to address issues before they become problems. You’ll also receive priority benefits including discounts on repairs, no diagnostic fees and maintenance on demand. See big time savings and convenience now and down the road.

**$999 - FIRST YEAR OF MONITORING FREE**

When you’re ready, we’ll credit the cost of your 24/7 monitoring installation toward your new system.

---

**EMERSON**

**Comfort Guard**

70% of HVAC systems are currently running below manufacturer spec; wasting energy and money.
2. Customer Chooses Smart Maintenance

**Smart Maintenance Plan**

FOR YOUR HVAC

**How it works.**

Custom sensors gather vital, never-before-seen information every time your system runs. The data is sent to our monitoring center’s secure cloud over your home’s Wi-Fi network.

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<table>
<thead>
<tr>
<th>Standard maintenance plan</th>
<th>Smart maintenance plan with existing HVAC system</th>
<th>New install with smart maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Maintenance Visits/Year</td>
<td>1-2</td>
<td>1</td>
</tr>
<tr>
<td>Discounts On Parts And Labor</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Waived Repair Trip Fee</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>24/7 Monitoring</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Custom Sensors</td>
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<td>✔</td>
</tr>
<tr>
<td>New Equipment Verification</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Monthly System Report</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Actionable Alerts</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Expert Insight</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Verified Repairs</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>$199/year</td>
<td>$49/year</td>
<td>$199/year</td>
</tr>
</tbody>
</table>

COSTS: $199/year for a standard maintenance plan, $49/year for a smart maintenance plan when combined with an existing HVAC system, and $199/year for a new install with smart maintenance.
3. Sensors Installed

- Return Air Temperature
- Supply Air Temperature
- Suction Line Temperature
- Liquid Line Temperature
- Optional WiFi Gateway
- Optional Condensate Monitor Accessory
- Optional Outdoor Accessory
- Outdoor Device

Data Hub

Voltage Current Control Lines

3. Sensors Installed
4. Install Report and Severity Explanation

All systems are fully operational.

Intermittent system performance or minor inefficiency. **Does not** require immediate attention however preventative action may result in operational savings.

Degradation is leading to breakdown or extreme inefficiency. Call your contractor at **555-555-5555** to resolve this issue.

There is an urgent issue that **requires immediate attention**. Turn off the system and call your contractor at **555-555-5555** to resolve this issue.
Hi Tim,

Welcome to ComfortGuard!

Your monitoring system was installed correctly and we’re now receiving live data from your home heating and cooling system(s).

We’ve run a complete diagnostic check of your system(s) and wanted to let you know that everything is running smoothly.

**Installation Verification**

- **Whole Home**
  - **PASS** Connectivity Check
  - **PASS** Heating Check
  - **PASS** Cooling Check
  - **PASS** Fan Check

**Alert Guide**

- **Pass**: All systems are fully operational.
- **Warning**: Degradation is leading to breakdown or extreme inefficiency. Call your contractor at (317) 305-5555 to resolve this issue.
- **Error**: There is an urgent issue that requires immediate attention. Turn off the system and call your contractor at (317) 305-5555 to resolve this issue.

---

5. Customer Receives Their Install Report
6. Customer Receives First Monthly Report

Runtime & Cost

Alert Details

Desktop Version
Attention - Filter Should Be Checked Or Replaced

ComfortGuard Support@mycomfortguard.com via icloud.com
to tomkoby

Tom,

Based on your system's filter size and run time, it's time to check your filter.

Recommendation: Turn your equipment off at the thermostat and remove the filter. If it looks dirty or clogged, follow the manufacturer's instructions to clean or replace it.
Filter Size: 20 x 25 x 1

Once you've replaced your filter, click here to tell us about your experience. The information you share will be used to provide even better filter detection!

Alert Date/Time: 5/28/2017 2:48:05 PM
Area served by System: Whole Home air conditioner
Reference Number: 72727

ComfortGuard delivers the worry-free solution you need to protect your home comfort.
Warning - AC Evaporator Coil Has Frozen

Tom,

Ice has accumulated on your indoor cooling equipment, preventing it from working effectively. Action is required to prevent harm to your equipment and protect your home from possible water damage as ice melts.

Recommendation: Turn your equipment off at the thermostat and contact your service professional for an evaluation.

Your Service Professional: Reliable Heating and Air
Call your local contractor for service: 770-594-9969

Alert Date/Time: 5/28/2017 2:48:05 PM
Area served by System: Whole Home air conditioner
Reference Number: 72727

ComfortGuard delivers the worry-free solution you need to protect your home comfort.
Customer Journey – Older Equipment

Install

Jan

First Monthly Report

First Month w/ AC

June

System Getting Worse

Filter Reminder

Filter Reminder

Real time Alert

Repair or Replace

Filter Reminder

Renewal

Install

Filter Reminder

Filter Reminder

Real time Alert

Repair or Replace

Filter Reminder

Renewal

First Monthly Report

First Month w/ AC

System Getting Worse

Repair or Replaced

Renewal