

*Keeping your world up and running.®*

# How to successfully accelerate healthcare facility expansions

Ahed Abedrabuh  
Routine Maintenance and Analysis Solutions  
Middle East, Africa, Russia Region



# Fluke – a Fortive company



## Professional Instrumentation

Field Solutions	Product Realization	Health	Sensing Tech.
<b>FLUKE</b> ®	<b>Tektronix</b> ®	<b>ASP</b> ®	<b>SPT</b> SPECIALTY PRODUCT TECHNOLOGIES
<b>QUALITROL</b> Defining Reliability	<b>PACIFIC SCIENTIFIC</b> ENERGETIC MATERIALS COMPANY	<b>Invetech</b>	<b>setra</b>
<b>GORDIAN</b> ®			<b>Gems</b> Sensors & Controls
<b>INDUSTRIAL SCIENTIFIC</b>			<b>ANDERSON-NEGELE</b> HYGIENIC BY DESIGN
<b>accruent</b>			<b>HENGSTLER DYNAPAR</b>

## Industrial Technologies

Transportation Tech.	Franchise Distribution
<b>GILBARCO VEEDER-ROOT</b>	<b>MATCO TOOLS</b>
<b>GTT</b> GLOBAL TRAFFIC TECHNOLOGIES	<b>HENNESSY INDUSTRIES, INC.</b>
TELETRAC NAVMAN 	

Strong Brands and Leading Market Positions

# About Fluke

# FLUKE BY THE NUMBERS

73  
YEARS



1250 TOOLS



4000+ EMPLOYEES



1497  
PATENTS



562  
BLOG ARTICLES

565  
VIDEOS



5  
ONLINE  
COURSES

789  
APPLICATION  
NOTES



76  
ON-DEMAND  
WEBINARS



# Worldwide locations



# Why professionals choose Fluke

## Every Fluke tool is built around one idea... You!

FLUKE®



### F.A.C.T.

- Local hands-on seminars and trainings
- Webinar programs
- On-line training
- Application notes



### Solutions

- Preventive Maintenance
- Energy
- Online Solution Centers



### Products and services

- Technical support
- Customer support
- Lifetime warranty
- Calibration & repair
- Service center locations
- Software updates/ downloads
- Recycle program

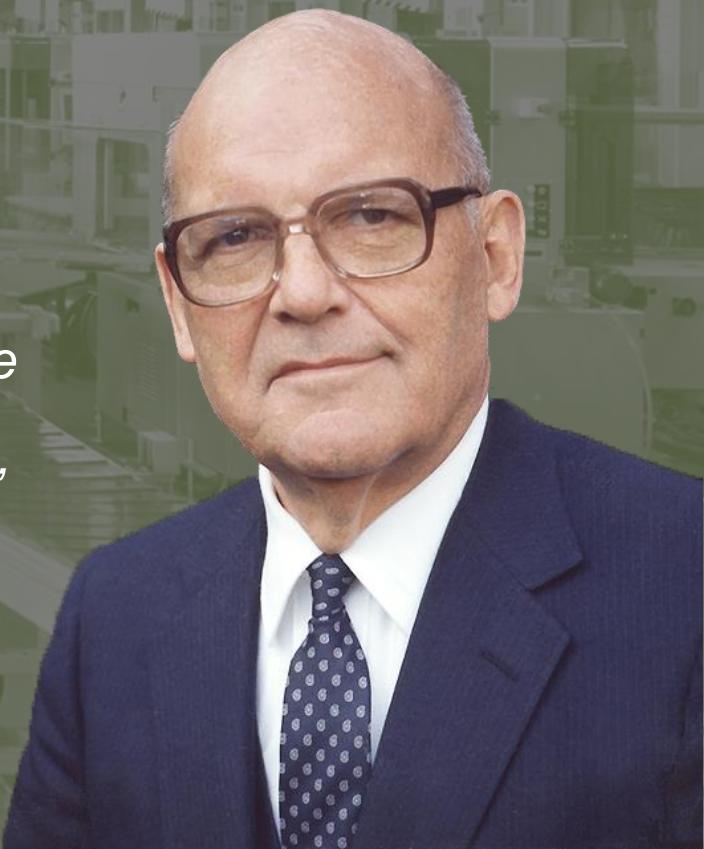
# Growth through innovation

Our founder John Fluke Sr. redefined precision testing when he made a business come to life in his basement.

Since 1948, we've helped define and grow a unique technology market, providing testing and troubleshooting capabilities in manufacturing and service industries in more than 80 countries.

*“Our customers have the right to get a little more than what they paid for.”*

John Fluke Sr.



# Fluke Corporation

## Fluke Calibration



## Fluke Industrial Group



## Fluke Networks



## Fluke Process Instruments



## Fluke Health Solutions



## Fluke Reliability



# Together...we are FLUKE

**FLUKE**<sup>®</sup>  
Process  
Instruments

**FLUKE**<sup>®</sup>



Digital Multimeters.

Hand  
and r

**FLUKE**<sup>®</sup>

**Reliability**

**FLUKE**<sup>®</sup>

Biomedical



Biomedical  
Test Equipment,  
Radiation Measurement,  
and more

**FLUKE**<sup>®</sup>

Calibration



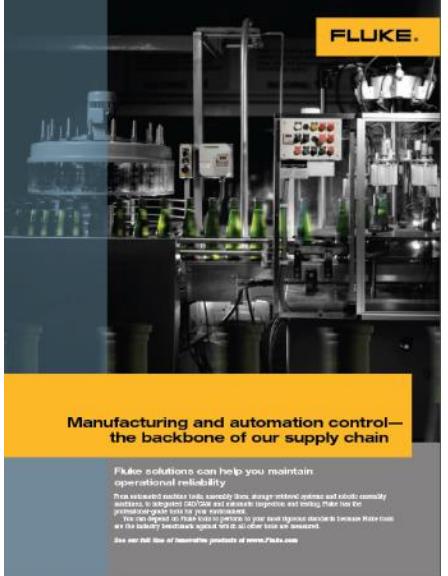
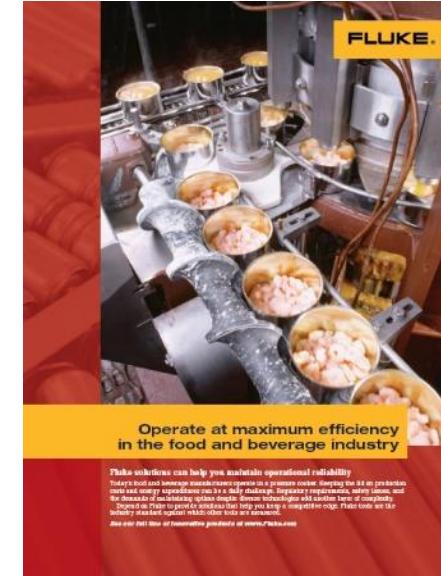
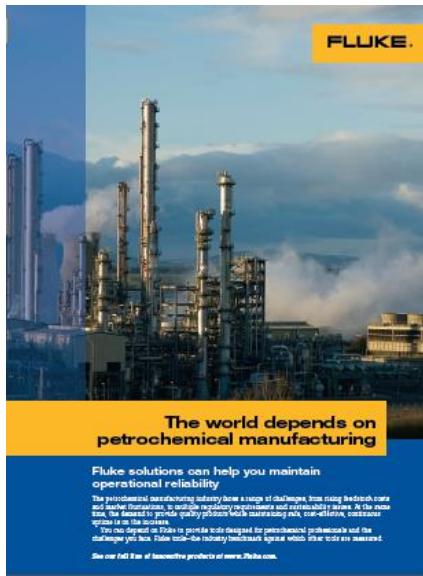
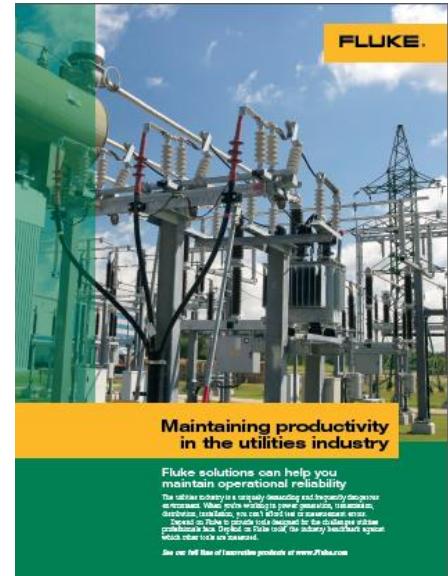
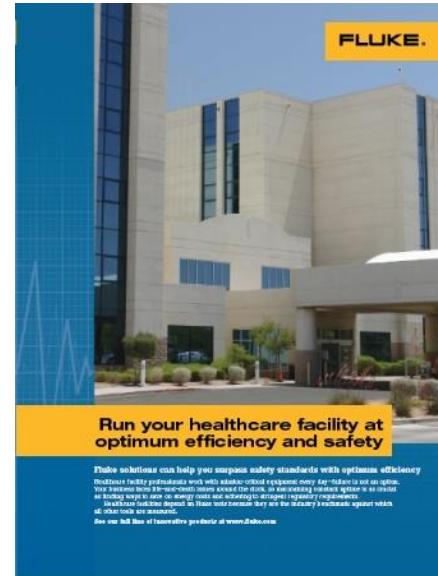
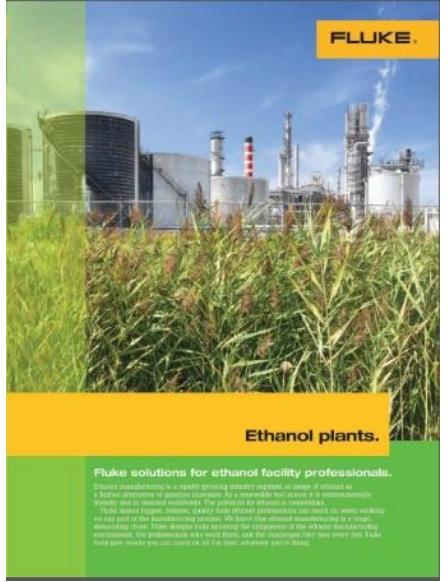
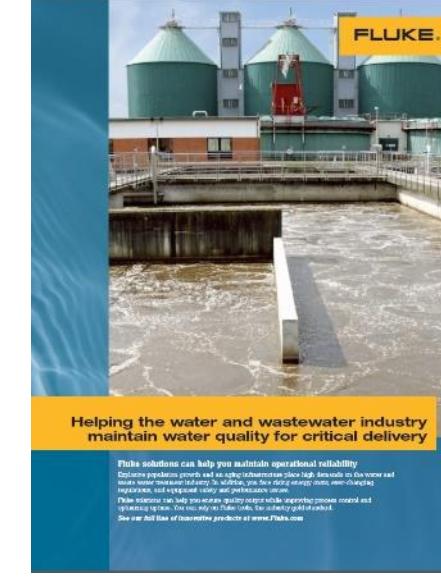
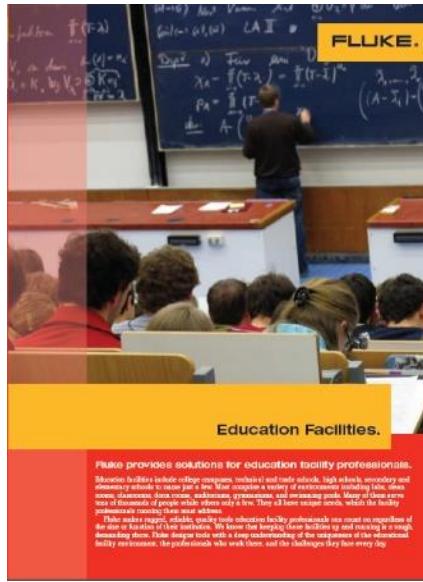
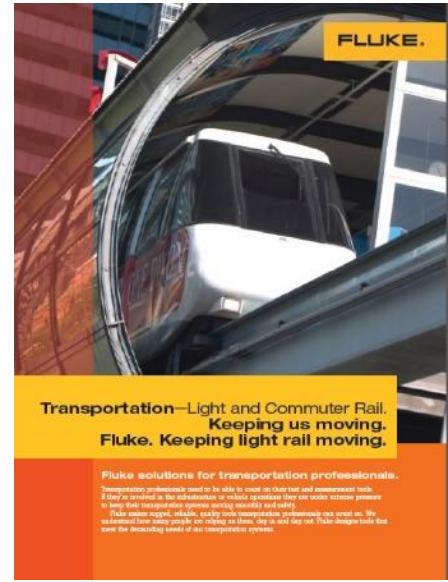
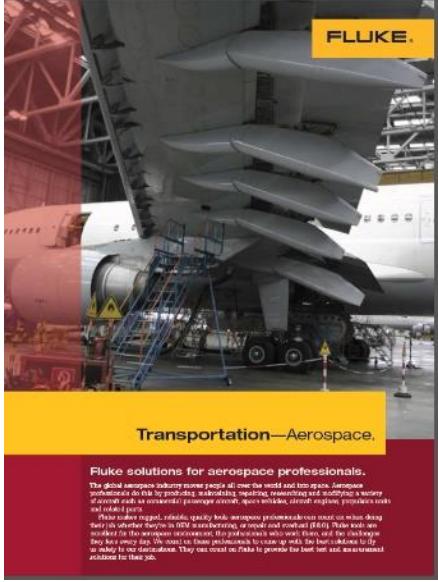
Calibration  
Equipment

**FLUKE**<sup>®</sup>  
*networks*



Network Cabling Infrastructure,  
Industrial Ethernet Solutions,  
Fiber Inspection Equipment,  
and more

# Our Solutions



# Our Solutions



**FLUKE.**

**Run your healthcare facility at optimum efficiency and safety**

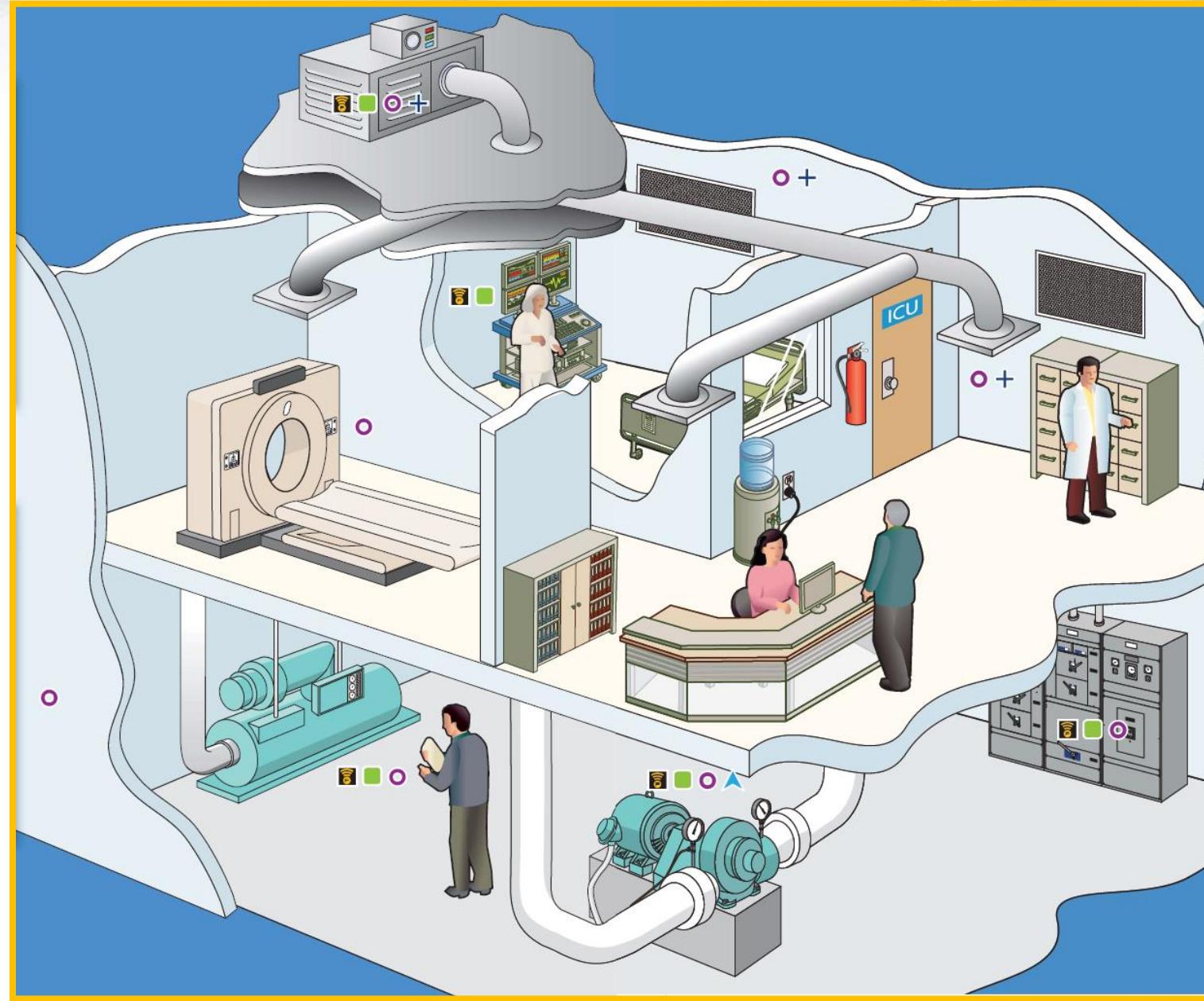
**Fluke solutions can help you surpass safety standards with optimum efficiency**

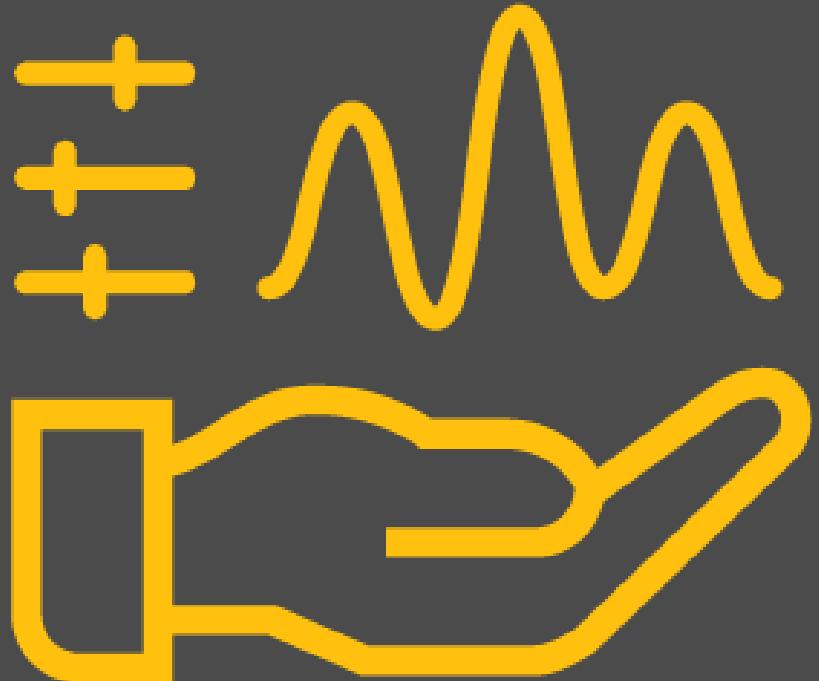
Healthcare facility professionals work with mission-critical equipment every day—failure is not an option. Your business faces life-and-death issues around the clock, so maintaining constant uptime is as crucial as finding ways to save on energy costs and adhering to stringent regulatory requirements.

Healthcare facilities depend on Fluke tools because they are the industry benchmark against which all other tools are measured.

See our full line of innovative products at [www.fluke.com](http://www.fluke.com)

# Multiple Points to Check Inside the Healthcare Facility

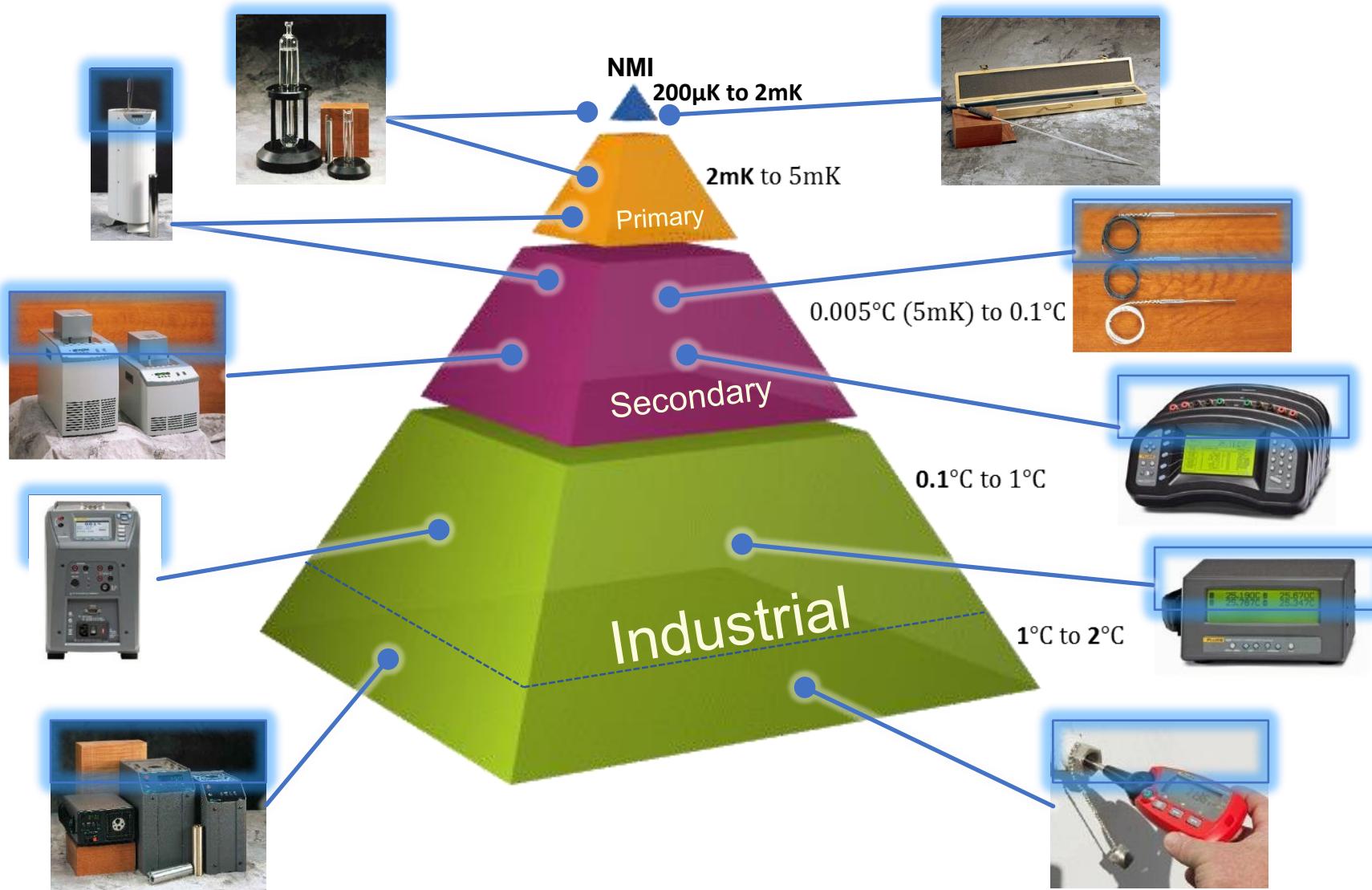




Calibration  
workflow

# Temperature Calibration : Product scope

FLUKE®



# Temperature Calibration

Primary standards, thermometer readouts,  
probes, baths, industrial calibrators



# Temperature Calibration System Inside Healthcare Facilities

FLUKE®

## Temperature Source/ Supply

### Field

- Field Dry-well
- Handheld Dry-well
- Micro-Bath
- TC Furnace



9170/9171/9172/9173



9142/9143/9144



9100S



6102/7102/7103

### Bench

- Metrology Well
- Calibration Bath

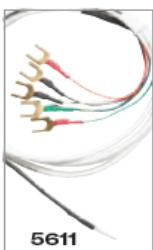


## Temperature Reference

- Industrial PRT



- Thermistor probe



- Thermocouple

## Temperature Readout

### Field

- Handheld 152X
- Stik 155X



### Bench

- 1502A
- 1529
- 1586A
- 159X



# Thermometers Readouts



- Multiple channels & sensor reading
- Log environmental condition RH & T°
- Data Logging, thermal mapping
- Portability



# Drywells & Metrology Wells



**Drywells / Metrology Wells** use a solid metal block as the controlled temperature volume

- Inserts provide holes to accept various DUT diameters with custom sizes available
- Temperatures range between -95°C and 700°C
- Temperature changes are very fast
- Light and easily portable
- Some have built in automation / documentation and DUT readout

# Infra-Red Temperature Calibrators

IR thermometers & Thermal Camera calibration

(-30 to 500 degC)

Target size

Emissivity

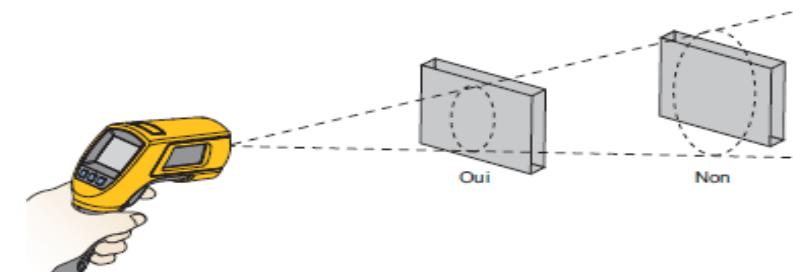
- Consider Calibration method

- Radiometric calibration

- By contact measurement

- Stability

- Uniformity



# Humidity Generator Fluke 5128A

## RH probes, meters & transmitters

- Calibrate up to 5 humidity sensors at a time
- Best-in-class specs (accuracy, uniformity, stability) 1% uncertainty
- Offers excellent stability and uniformity specs for accurate humidity probe calibration
- Fast humidity and temperature stabilization
- Compact size and lightweight, easy to transport
- Accommodate different humidity probe sizes and data loggers



# Pressure & Flow Calibration

Piston gauges (pressure balances, deadweight testers)

Pressure controllers / calibrators, monitors & software

Gas flow calibration standards, accessories

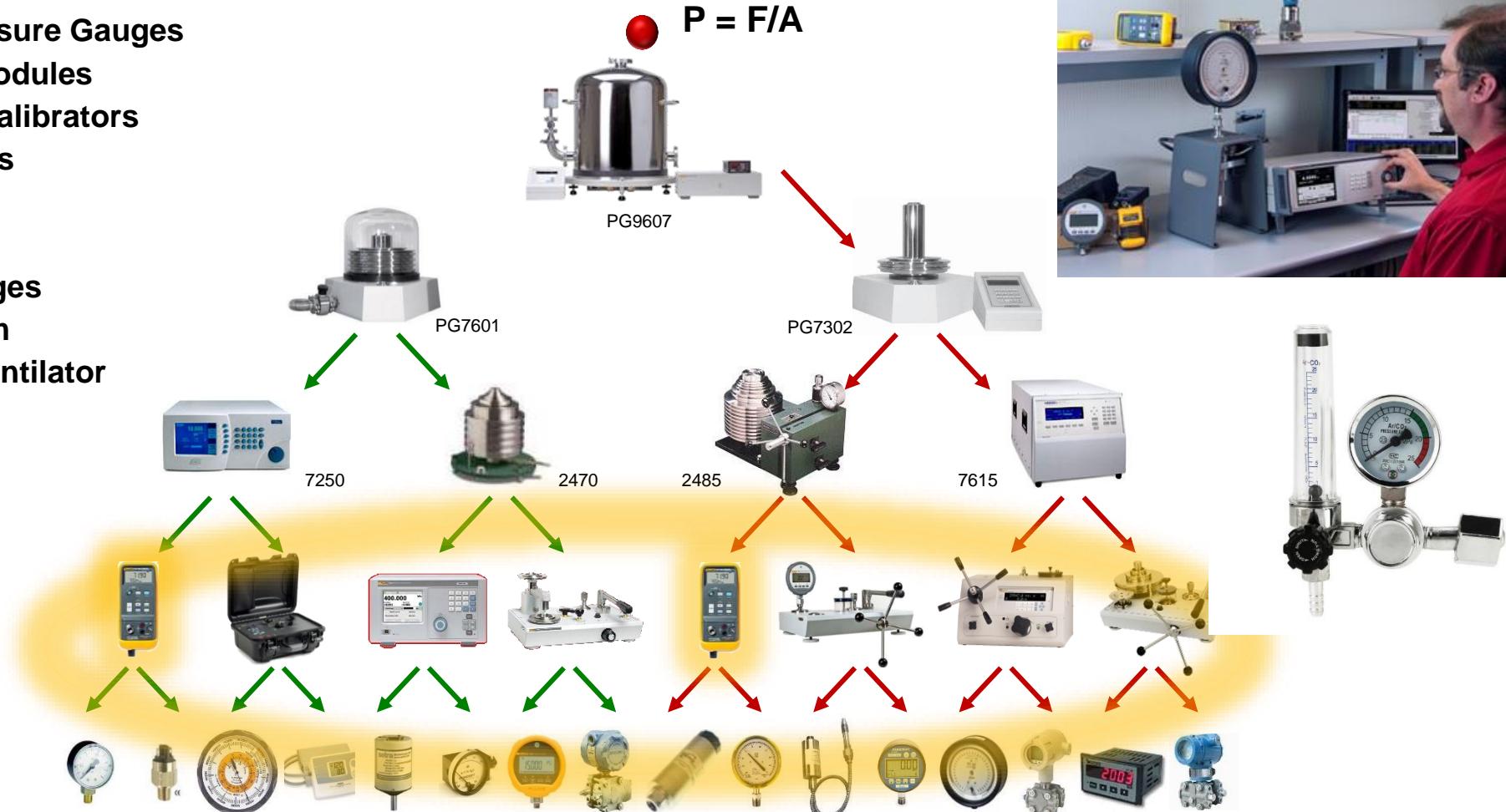


# Pressure and Flow Calibration

- Digital Pressure Gauges
  - Pressure Modules
  - Handheld Calibrators
  - Hand Pumps

## Calibrate :

- Oxygen Gages
  - Flow system
  - Pressure ventilator





Routine  
Maintenance  
workflow

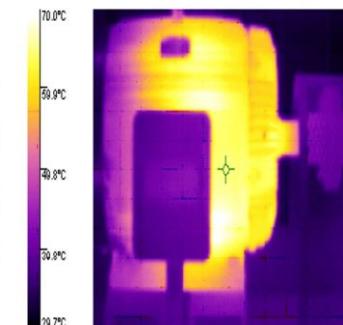
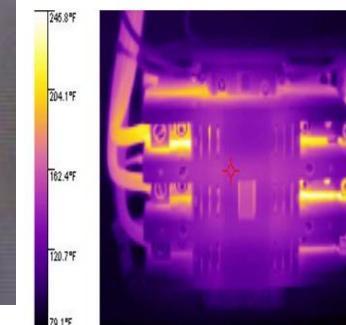
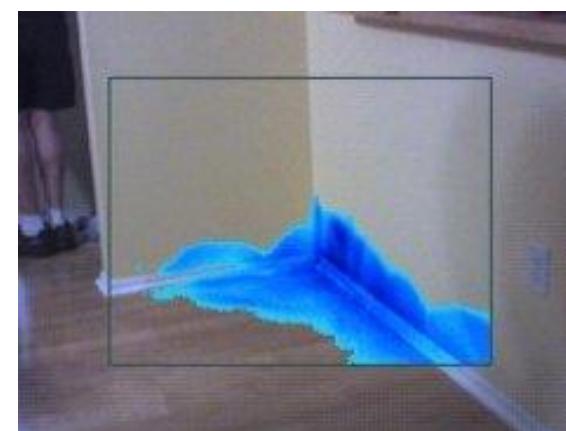
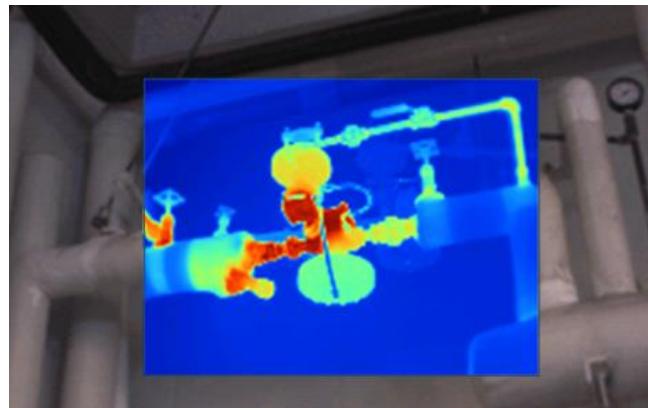
# Healthcare solutions

Process Calibration Tools		Electrical Test Tools							
Pressure gauges and calibrators	Process test tools	Power quality analyzers		Portable oscilloscopes	Earth ground testers	Clamp meters			
 700G	 729	 789	 773	 430 Series II	 1738	 190 Series II	 1625-2 Kit	 376 FC	 902 FC

			Infrared and Vibration Tools			Air Quality	Software	
Insulation multimeters	Digital multimeters	Fluorescent light tester	Thermal imagers professional	Infrared thermometers	Vibration testers	Indoor air quality	Maintenance software	
 1587 FC	 289	 1000FLT	 Ti400	 568	 810	 805 FC	 985	 Fluke Connect®

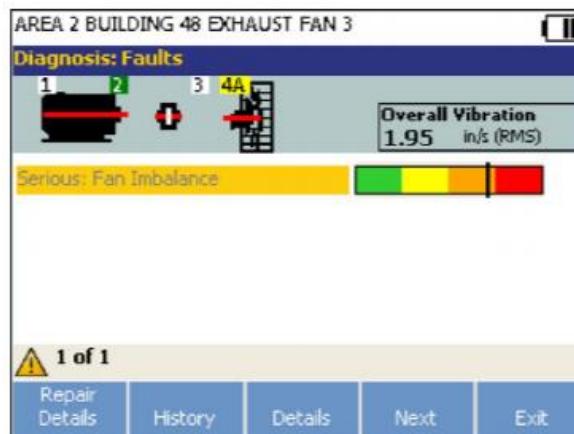
## Detect Issues in the facility with Thermal Imagers & Infrared Thermometers

- Detection of “hot spots” on motors, pumps, VFDs, bearings and compressors.
- Capturing and troubleshooting tank levels.
- Inspecting fuse boxes, insulators, transformers and other electrical system components.
- Monitoring of roof moisture, building insulation and thermal bridging state.



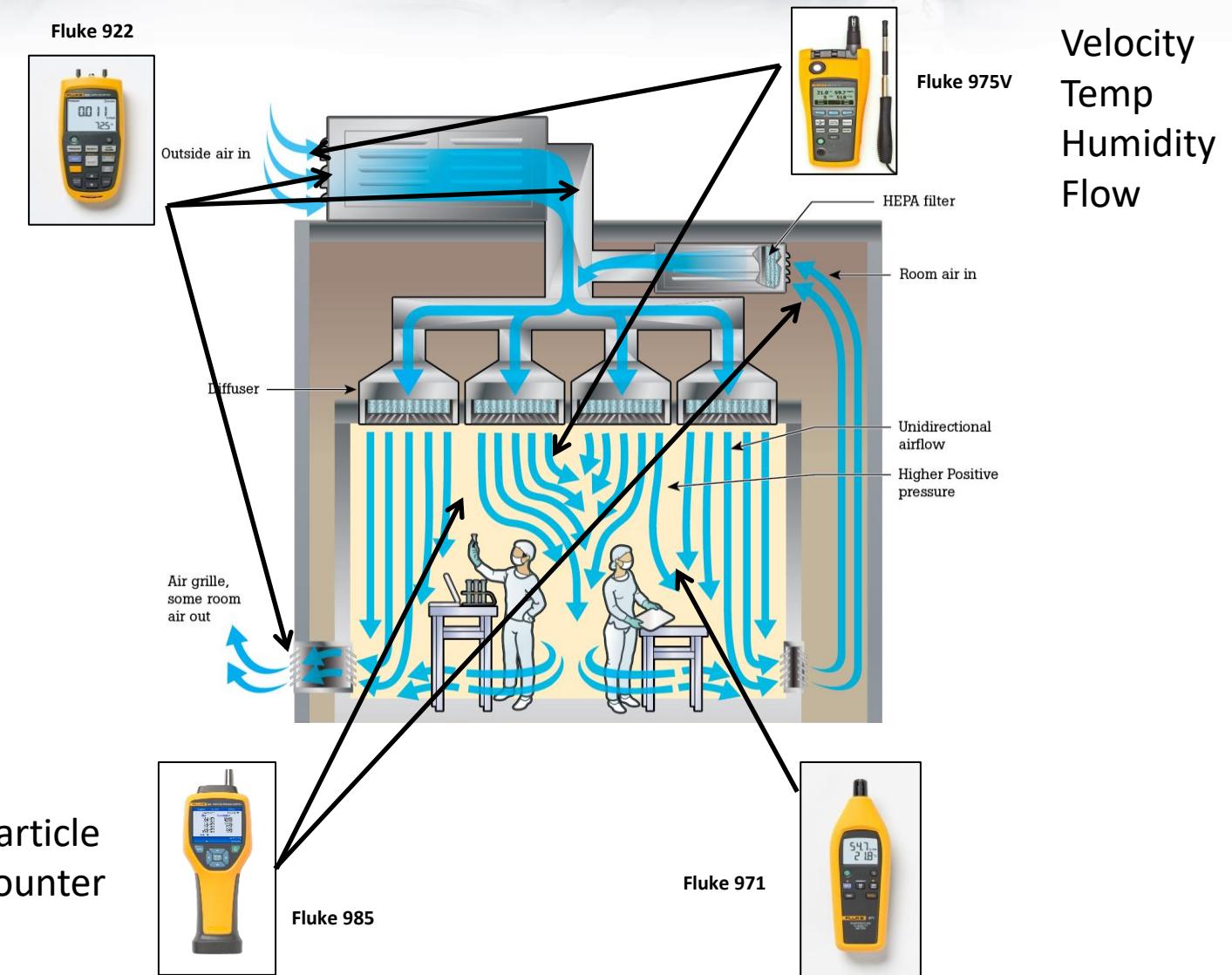
## Predictive & Condition-based Maintenance with Fluke 805 Vibration Meter and Fluke 810 Vibration Tester

- Identify root cause and diagnosing severity of machine's condition
- Prioritizing critical repair and replacement options
- Use with motors, pumps, fans, compressors, belt/chain drives, gearboxes and spindles
- Analyze if your asset has misalignment, bearing wear, looseness or unbalance.



## Important Parameters in Cleanroom:

- Airflow velocity and uniformity
- Filter integrity
- Airborne particle counting
- Cleanroom pressure and contaminant
- Temperature and relative humidity

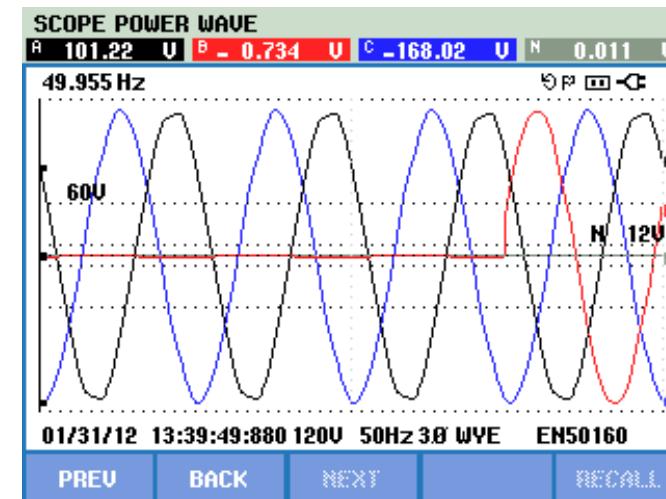


# Imaging Systems; X-Ray, Mammography and others

## Perform Root Cause Analysis on Imaging Systems with Fluke 435-II Power Quality Analyzer

- Check power quality before installing the new imaging system.
- Check that the power system delivers strong and stable voltage.
- Track intermittent problems; such as dips, swells, transients and record these events.
- Troubleshoot other assets in the hospital; motors, HVAC...

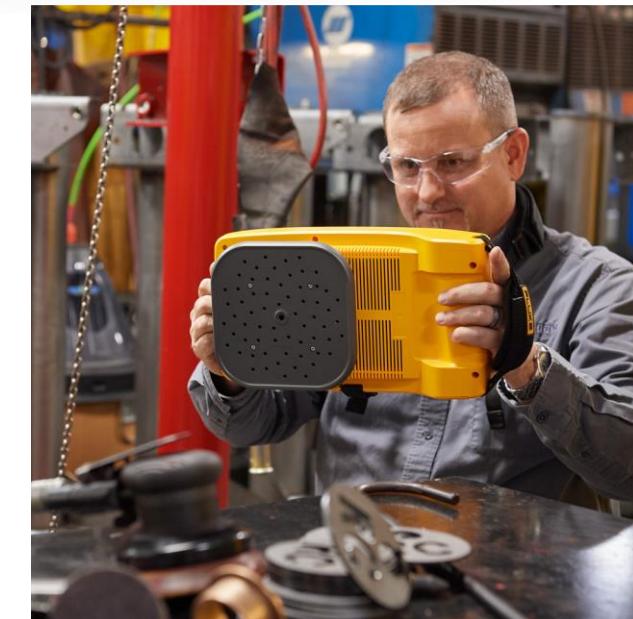
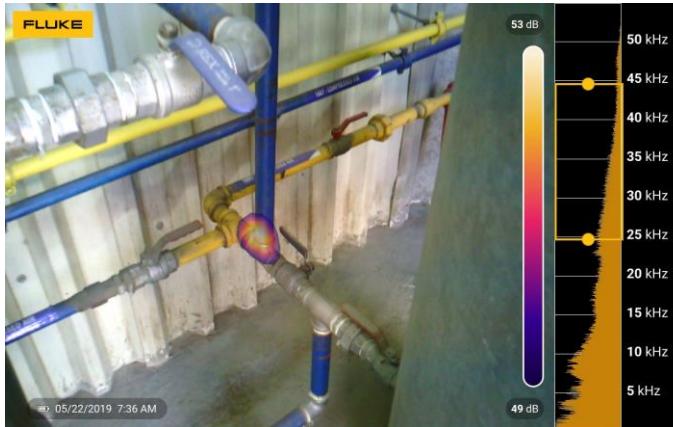
LOGGER				
START 09/08/17 13:08:18			EVENT 1 / 41	
DATE	TIME	TYPE	LEVEL	DURATION
09/08/17	13:08:54:751	A	DIP	153.4 V
09/08/17	13:10:19:501	A	SWL	300.5 V
09/08/17	13:11:42:033	A	DIP	167.9 V
09/08/17	13:11:42:552	A	DIP	185.0 V
09/08/17	13:11:42:562	A	TRA	> 100V
09/08/17	13:12:05:023	A	CHG	13.4 V
09/08/17	13:12:09:653	A	CHG	13.3 V
09/08/17	13:12:59:513	A	DIP	201.6 V
09/08/17	13:13:35:793	A	SWL	276.5 V
09/08/17	13:13:42:632	A	CHG	14.4 V
09/08/17	13:13:49:334	A	CHG	14.2 V
...	...	...	....	.....
09/08/17	13:38:19	230V	50Hz 1Ø	EN50160
WAVE	RMS	NORMAL	DETAIL	
EVENT	EVENT		BACK	



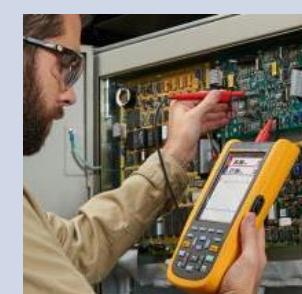
# Oxygen and Medical Gasses Systems

## Use Fluke ii900 Sound Imager to Ensure Efficient Operations without Air Leaks!

- Compressed air, gas and vacuum systems are a vital source of converted energy in different types of facilities.
- Many of these systems are compromised by wear and poor maintenance practices, which contribute to the greatest waste of all; the ever-present leaks.



# Maintain a Safe Electrical System Inside the Hospital



**Screen your electrical system with Multimeters, Clamps, Electrical Testers**

**Protect your people and facility with Earth Testing & Insulation Testing**

**Maintain backup battery systems for maximum usage and reliability**

**Check your electrical installations and appliances with Multifunction Testers**

**Deep dive into electrical issues with portable oscilloscopes**

**Questions?**