
Bird®

What will you get from this class?

Class description

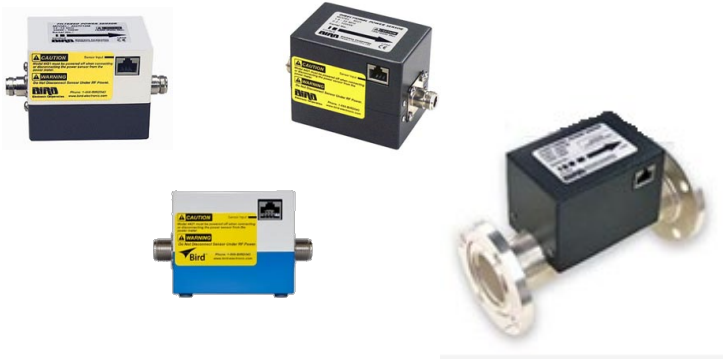
*Bird's Model 4421 has been updated with the introduction of the **4421A – Series** meter. While maintaining backwards compatibility with the original 4421, the new meters comprise customer-friendly features such as multi-sensor display and graphing capabilities. Future enhancements include the ability to display power readings from the 702x and 703x - Series Power Sensors.*

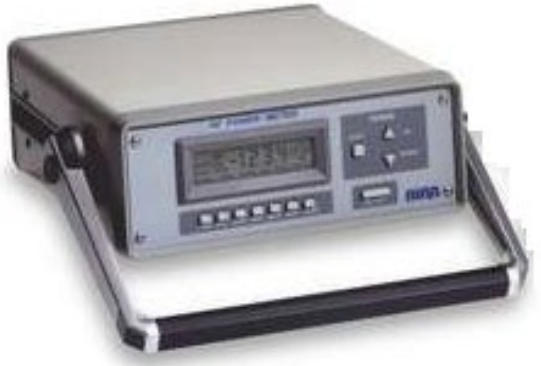
- Application Overview
- Who are the customers?
- What are user's pain points?
- Product Overview
- Competition
- Key Questions to Ask
- Sales Tools

Application Overview

Original 4421 Power Meter:

- The Bird 4020-Series sensors have been the industry standard for measuring RF power for decades
- The original 4421 meter displays the sensor's measurements
  - Unambiguous readings
  - Straight-forward operation
  - Robust construction

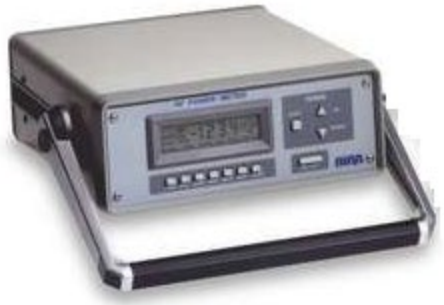




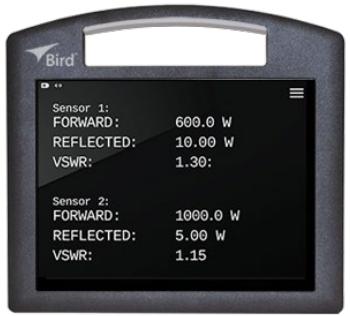
Application Overview

New 4421A-Series Power Meter:

- Utilizes user-friendly touchscreen capability
- Lighter and more portable package
- Option for dual sensor display



Original 4421 Meter



New 4421A-Series Meter

Who are the customers?

OEMs

Semiconductor tool OEMs who are developing new processes and test-sets

- Applied Materials
- LAM Research
- Tokyo Electron

Generator OEMs

- AE
- MKS
- Kyosan
- Daihen

Fab and foundries

Manufacturing sites that utilize RF power

- Intel
- Samsung
- Micron
- TI
- GlobalFoundries

Calibration Labs

Third party maintenance, repair and calibration facilities

Who are the customers?

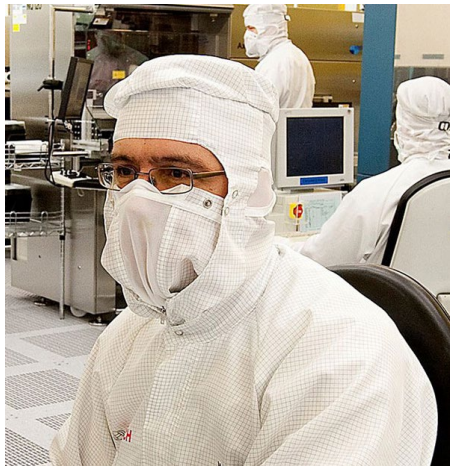
Persona: Metrology Technician

Objective: Test and calibrate RF generators

Primary Focus: Ensuring generator performance meets required accuracy

Workflow Task:

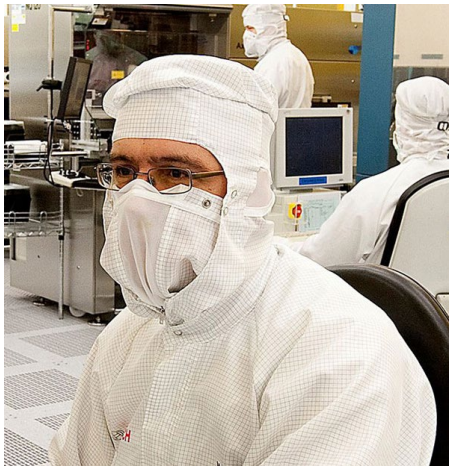
- Perform health checks at established intervals
- Minimize equipment downtime by efficiently capturing required datapoints and by reducing errors



What are the user's pain points?

Persona: Metrology Technician

Pain points:
- Complicated user interface lengthens the time needed to complete a task
- Unstable or unclear readings introduces measurements error
- Equipment needs to be transported to multiple generator locations



4421A-Series Power Meter Benefits:
- Multi-line display provides Forward, Reflected and Return Loss measurements together
- Graphing capability allows the user to assess power stability prior to recording a measurement
- Lighter and streamlined packaging eases movement between test locations

Product Overview

4421A-Series Power Meter Value Proposition

For semiconductor technicians who validate the conformance of RF sources to their specified accuracies, we provide the 4421A-Series Meter for the precise testing and calibration of RF power.

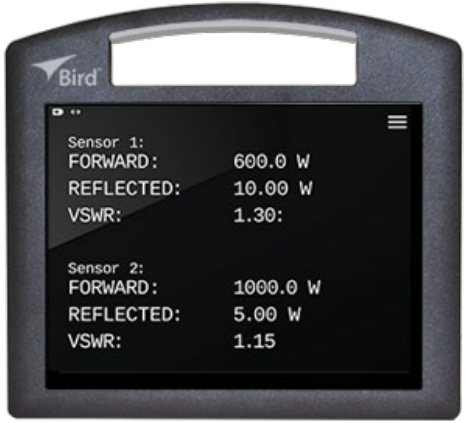
The 4421A-Series Power Meter works flawlessly with Bird's proven 4020-Series Sensors to reliably provide up to 1% accurate readings without the need for separate directional-couplers or attenuators. This streamlined solution provides a cost effective and reliable method for the maintenance of RF generators.

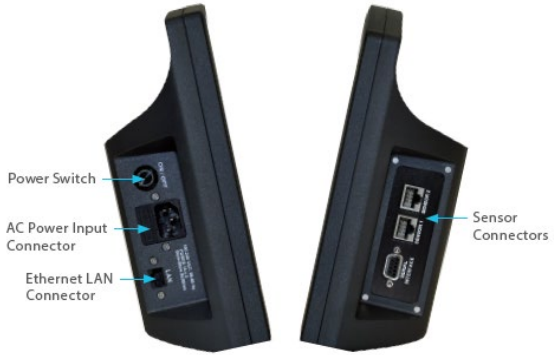
Product Overview

4421A-Series Power Meter

Multiple options are available for various use-cases
Units can be upgraded in the field to convert to a different model

Model	Sensors Supported	Remote Communication
4421A-10-00-0	1	No
4421A-20-00-0	2	No
4421A-10-11-0	1	RS-232
4421A-20-11-0	2	RS-232



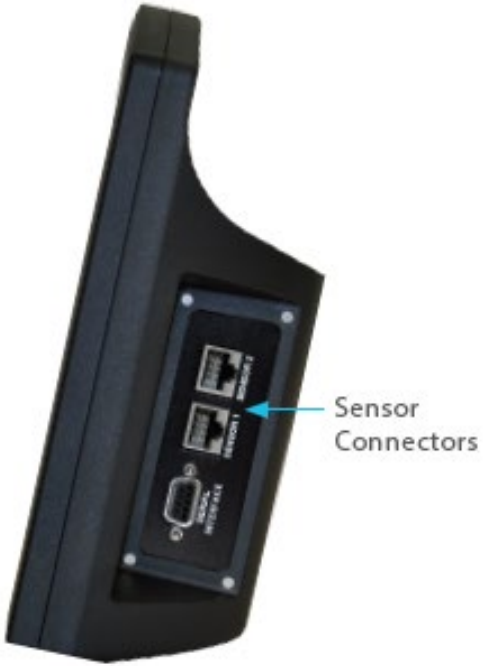


Product Overview

4421A-Series Power Meter

Compatible with Bird's 4020-Series Power Sensors

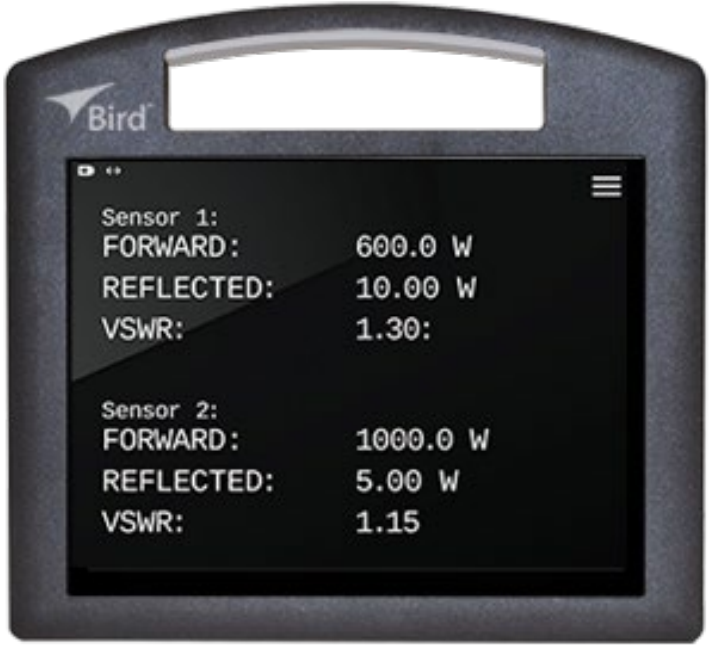
- Sensors are detected automatically with no setup required
  - 4021, 4022, 4023, 4024, 4025 3% Power Sensors
  - 4027-Series 1% Power Sensors
  - 4028-Series 2% Power Sensors
- Connects with the sensors' Latch-N-Lock cables as before



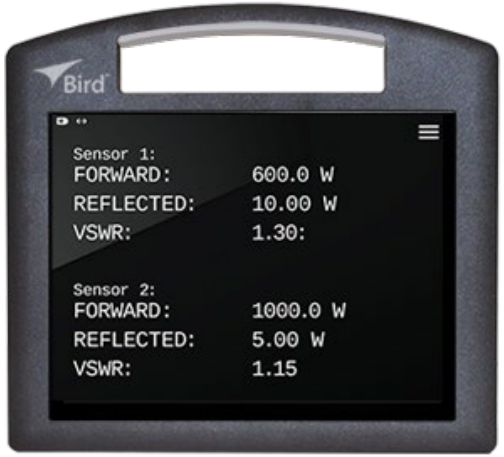
Product Overview

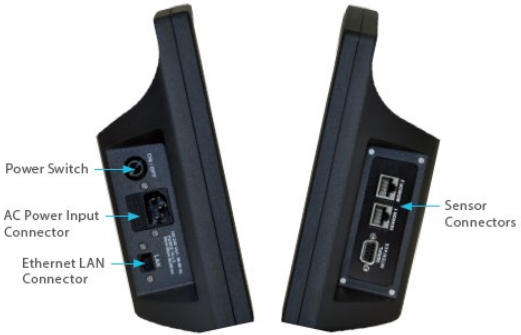
4421A-Series Power Meter

Large 9.7” LCD display
- Enhanced reading clarity
  - Detects single or dual sensor connection
  - Forward, Reflected and VSWR measurements in a single screen
- Capacitive touchscreen
  - Tested to perform with a gloved hand



Product Overview





<u>4421A-Series Power Meter</u>

Compact design for improved portability

- Weighs less than 5lbs.
- 7-hour operation under battery power
- 4 hours to fully charge

Safety Compliance

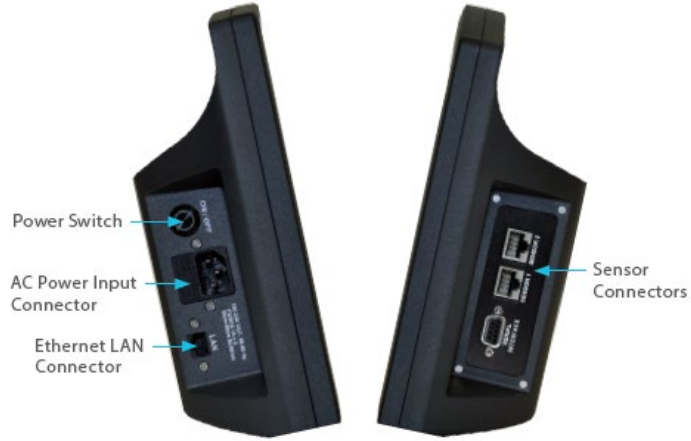
- NRTL Listed

Product Overview

4421A-Series Power Meter

Option for remote communication:

- Supports command set used in the original 4421 Power Meter
  - Interface via RS-232
- New SCPI protocol being tested for release soon
  - Interface via RS-232 and LAN
  - Supports dual sensors

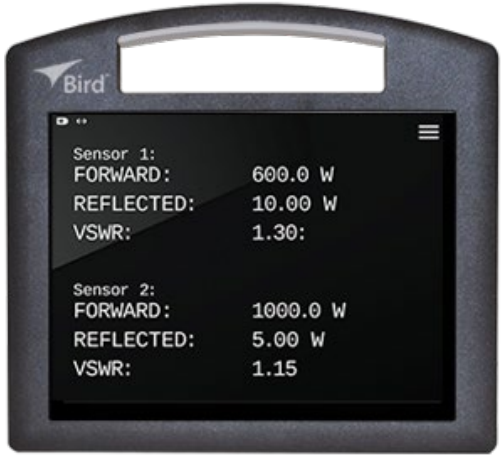


Product Overview

4421A-Series Power Meter

Coming soon:
- SCPI protocol communication via RS-232 and LAN
- Graphing capability of Forward Power over time

Future plans:
- Bird 7027-Series Sensor compatibility
- Intended to provide Average RF Pulse Power readings
- Will require new hardware to include a USBTMC port



Competition

What makes the 4421A-Series Power Meter unique?

- Compatibility with Bird's 4020-Series Sensors
  - Proven accuracy and reliability
- Ease of use
  - Display with enhanced reading clarity
  - Intuitive touchscreen controls
  - Options for dual sensors
  - Field upgradeable
- Able to interface with automated test stations
  - RS-232 or LAN interfaces
  - SCPI protocol command set

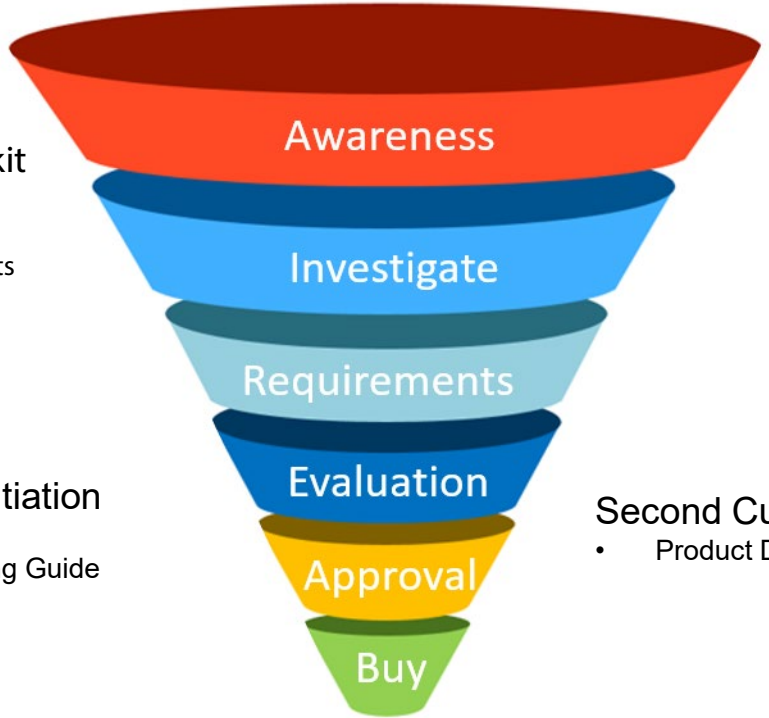
Questions

1. What are the frequencies and power levels in your application?
2. How many generators do you monitor at the same time?
3. Do you need to capture the readings by remote using automated test code?
4. Is reflected power and return loss critical parameters?
5. How are you currently measuring generator performance?
6. How is equipment drift detected?
7. What is it about your system that you like and don't like?
8. How confident are you in the results?

Sales Tools

Prospecting Toolkit

- Datasheet
- Webinar
- Maximizer contacts



First Customer Meeting

- Product PowerPoint Slides
- Leave-behinds:
  - Datasheet
  - App Notes

Points of Differentiation

- Questions to Ask
- Competitive Selling Guide

Second Customer Meeting

- Product Demonstration or Webex