HITACHI
Inspire the Next

FT230

Simply Smarter

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COATINGS

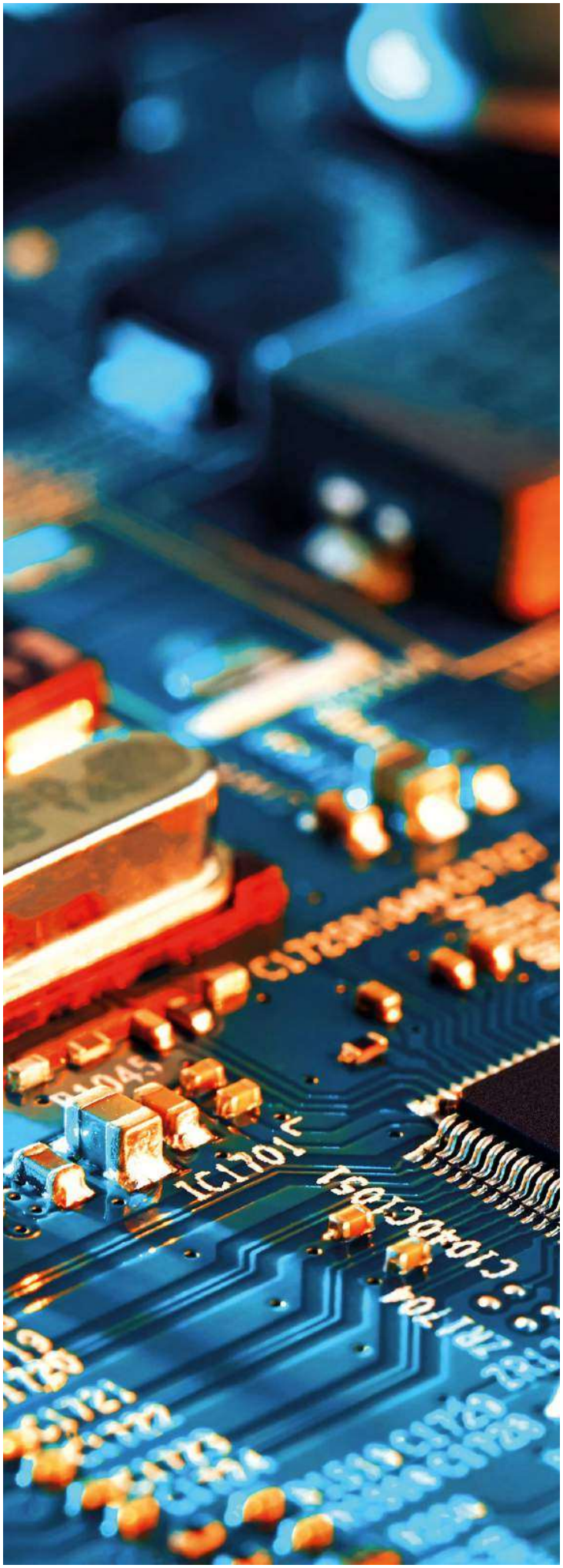
Quality control that keeps pace with production

XRF analysis has always been fast. But if you've been taking XRF measurements within a production environment, you'll know most of the time spent with your XRF equipment is in the preparation and set up, not the actual analysis. And with increasingly tiny and complex components, tightening specifications and the need for 100% inspection, every second matters.

The new FT230 from Hitachi cuts right to the heart of this problem. Every element of the FT230 is designed to reduce the time it takes to complete an XRF measurement so that you can act on your results faster, reducing waste and increasing throughput. At a fundamental level, we've made it easier and simpler to interact with the instrument.

All you need to do is load your part and run the Find My Part™ routine and the FT230 will find the features that need to be measured, choose the correct analysis program and send the results where you need them. Operators have fewer decisions to make and can spend more time performing other tasks.

There's no need for your XRF to be the bottleneck in your production. From minute electronics components to large-scale plated parts, the FT230 helps you get more done in less time, making it easier to achieve 100% inspection.



Break Free with the FT230

FAST THROUGHPUT

Automated focusing speeds up sample loading time, even when switching between components of different shapes and sizes.

RAPID SETUP

The smart recognition feature Find My Part™ automatically selects the right analysis routine and locates the correct spot for analysis.

EXCELLENT VISIBILITY

The analyzer includes an option for a wide-view camera and presents the sample view over a large area of the screen. This, plus adjustable LED lighting, makes it easy to pinpoint the area of interest.

MAXIMUM UPTIME

Self-checking diagnostics confirm the stability and health of the analyzer. This data can be shared with Hitachi's support team for expert monitoring using Hitachi's secure ExTOPE Connect cloud data service.

SEAMLESS INTEGRATION

Integrates seamlessly with other software systems, such as QMS, SCADA, MES and ERP, with easy, customizable data export and report creation for internal users and external customers.

EASY TO USE

The new user interface has been designed for users who are not XRF experts. Intuitive and uncluttered, the right analysis is only a click away.

POWERFUL VERSATILITY

The FT230 simplifies your testing program with the capability to analyze up to four coating layers plus the substrate, as well as bulk materials including metal alloys and plating baths.

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Smart recognition

The FT230 includes newly developed smart part recognition for fast and foolproof analysis setup. This automates the most frustrating and potentially error-prone part of the analysis setup - selecting the right recipe for each analysis location.

Find My Part™ selects the right analytical routine for the part you are measuring. Let the XRF make decisions about where and how to measure, and send the results and reports where you need them. This is faster than a manual process, reduces the potential for user error and frees up operators to perform other tasks.

When you come to analyzing new parts, it's simple to add them to the on-board library.

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Automated focusing

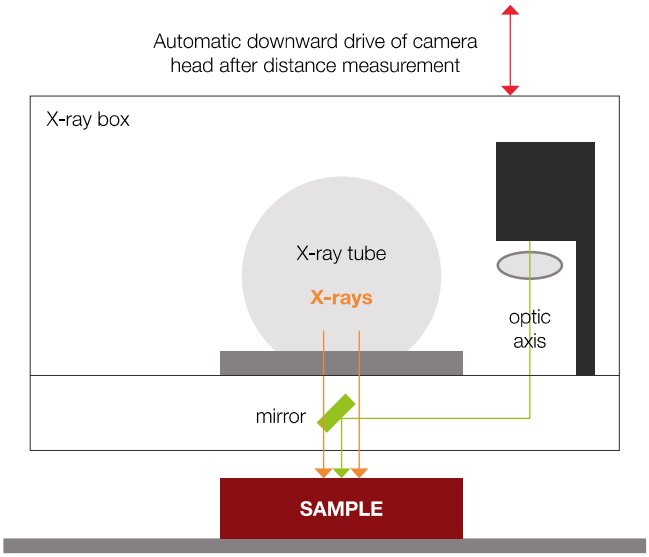
For maximum accuracy and precision for your XRF analysis, it is essential to maintain a known distance between the tube, the part being measured and the detector. Even small variations in the focal length can have an impact on the reliability of the results, giving you thickness measurements that are either too thick or too thin, depending on whether the X-ray tube is too near or too far from the sample.

We have improved instrument setup by providing the user with a choice of two automated focusing options: **auto approach** and **auto focus**.

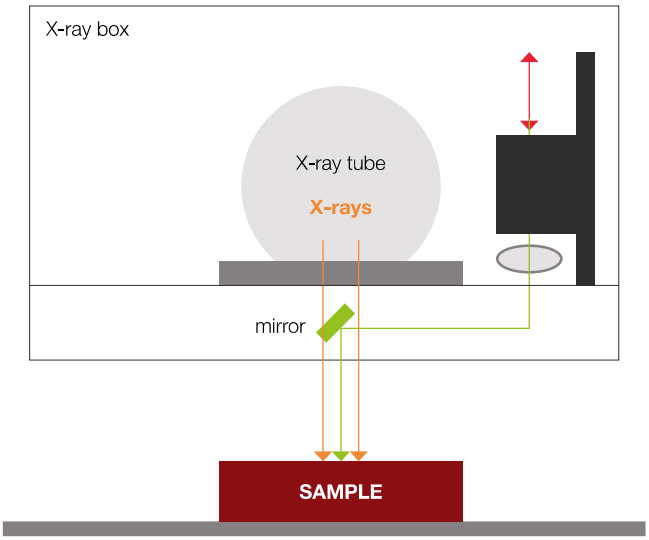
Auto approach is used when a fixed working distance is preferred. With a single click, the instrument automatically moves the X-ray tube to that distance. **Auto focus**, sometimes called distance independent measurement, allows the instrument to get accurate results even when the working distance changes.

This can save a huge amount of time over a day of analysis, especially when measuring components that have complex geometries or different samples with features of varying heights.

AUTO APPROACH FUNCTION



AUTO FOCUS FUNCTION



MEASURE PARTS WITH DIFFERENT HEIGHTS

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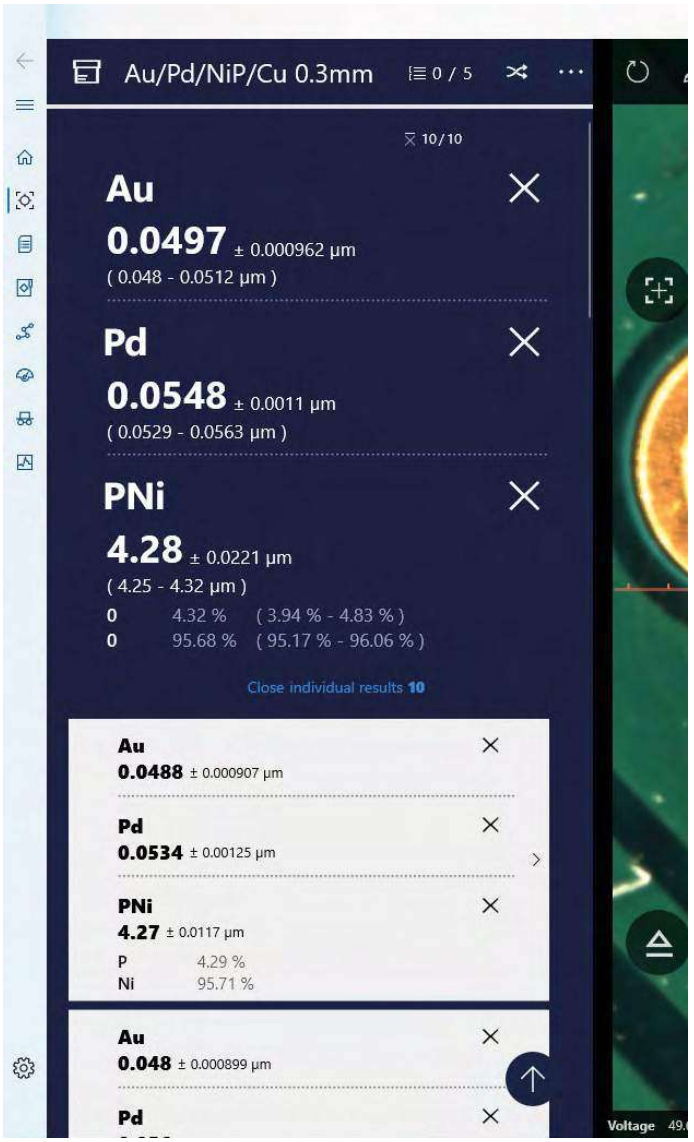
Smart and simple interface

The FT230 is the first product to run Hitachi's new FT Connect software, building on over four decades of experience and user feedback on established software including SmartLink and X-ray Station.

FT Connect gets you results faster. The most notable difference is the interface. Instead of a screen full of controls and options that the user needs to navigate, the FT Connect screen prioritizes the sample view and clear presentation of the analysis results. This makes it much easier to position parts correctly and act quickly on the results.

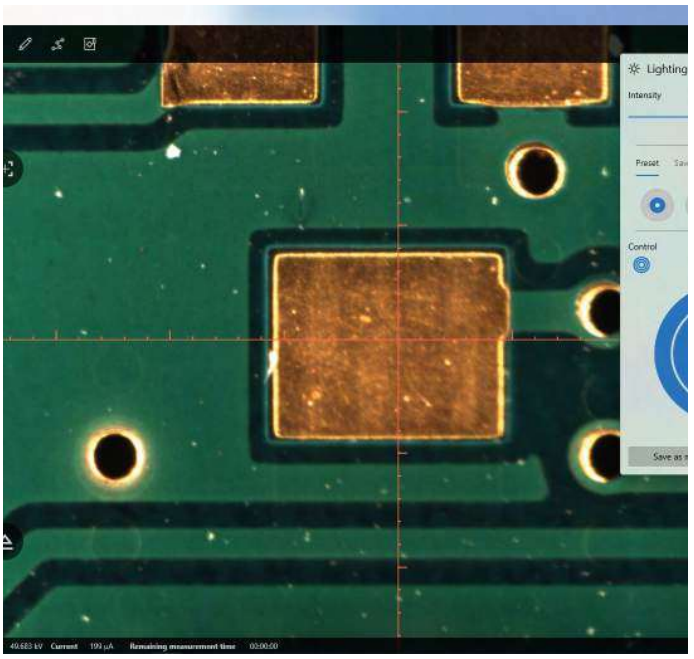
The routine measurement screen – where users spend nearly all their time with the XRF – shows only the controls needed to set up and start a measurement and evaluate results. Users can easily create calibrations, set up report templates and data handling rules as well as develop more complex analysis programs, patterns and parts using the guided selection tools, all just a few clicks away. FT Connect gives you the simplicity to run routine analysis and interpret results fast, while still incorporating the powerful analytical options for more advanced situations, including root cause analysis.

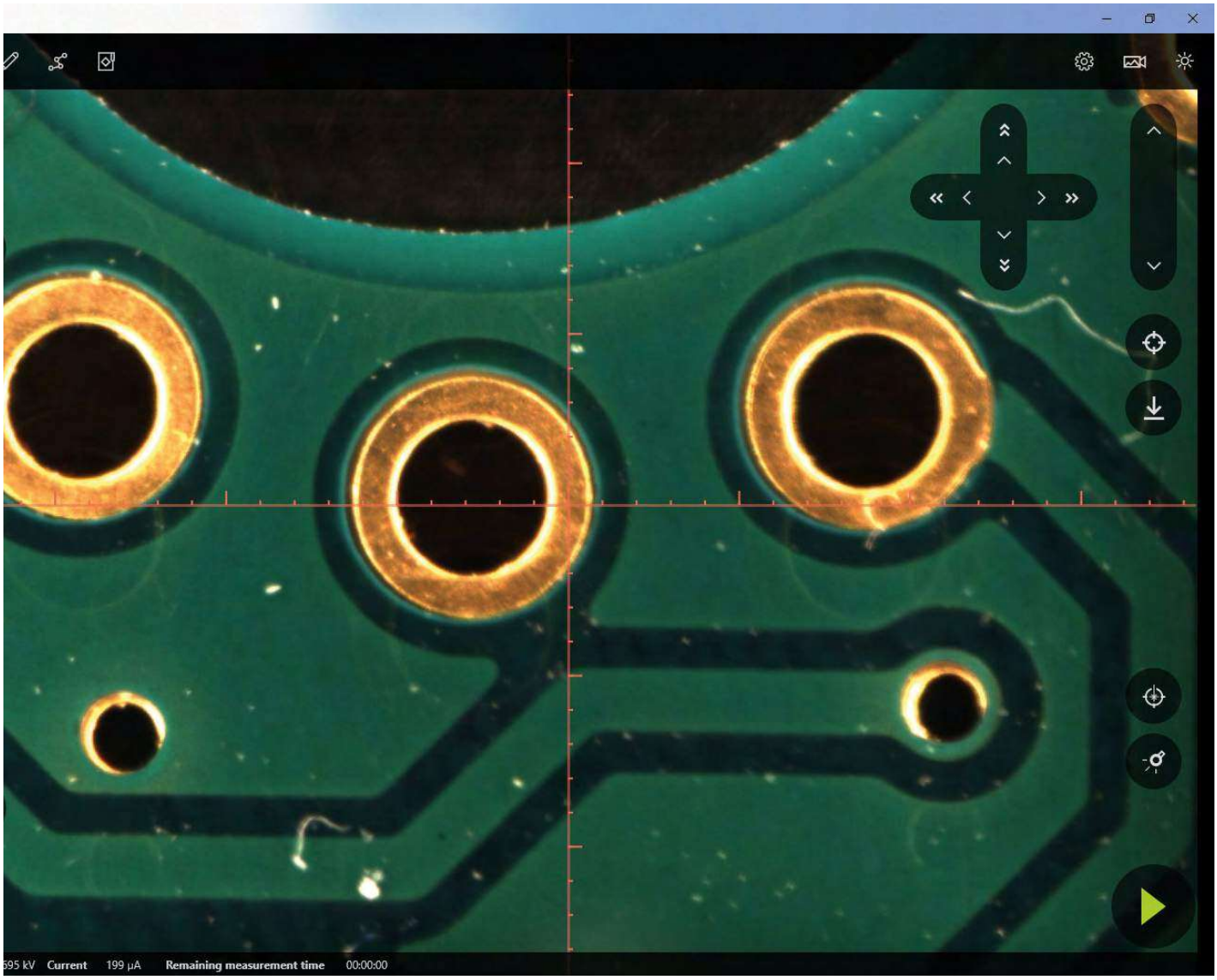


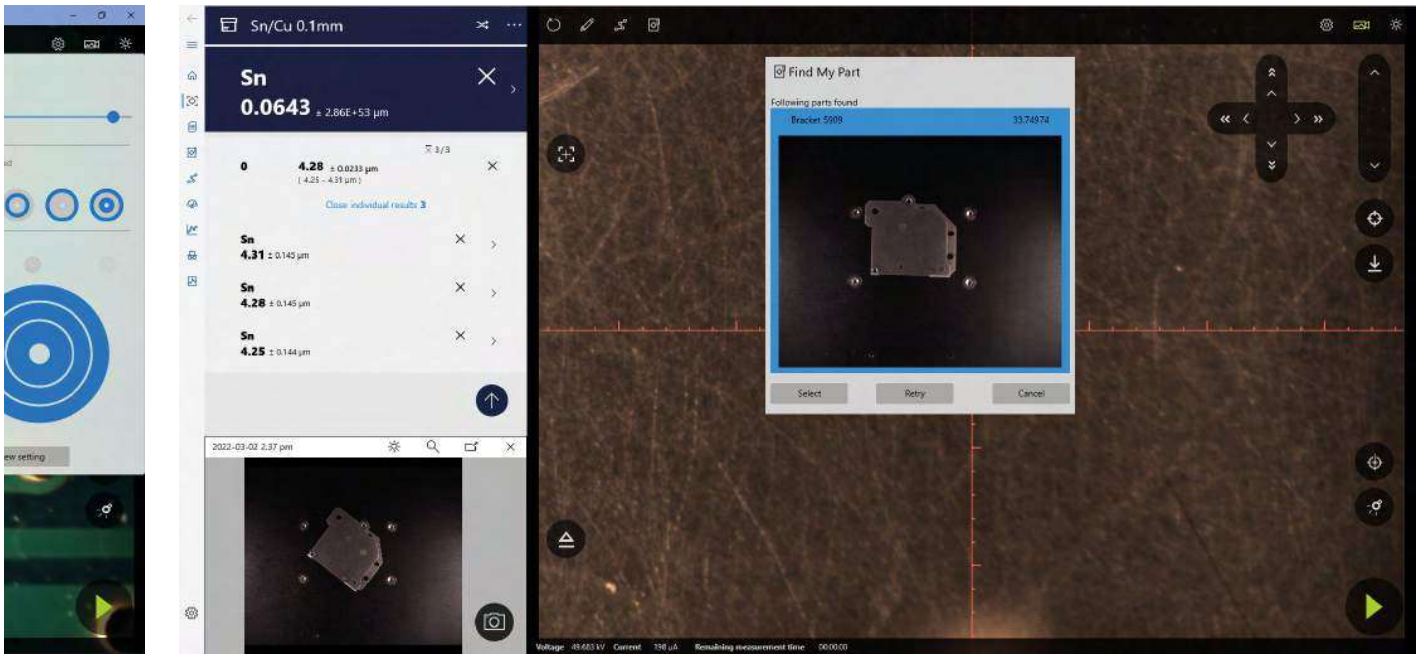
LARGE SAMPLE VIEW

One of the most frustrating aspects of setting up a sample for analysis is simply finding the right area on the PCB or metal component. In addition to the smart recognition features, the FT230 presents the largest in-software sample view in the industry. With the majority of the screen showing the part, operators can more easily view the features on the surface, helping them pinpoint the right area for analysis and making it much easier to navigate around the surface of the part.

In addition, the FT230 comes with the option of a second, wide-view camera, to make it even easier and faster to find features on a large circuit board or metal plated component. When the two cameras are used together, you can quickly switch between measurement sites on a single part or between multiple parts in the chamber, without getting 'lost' in the details.




595 kV Current 199 µA Remaining measurement time 00:00:00


Sn/Cu 0.1mm
Sn
0.0643 ± 2.86E+53 µm
0 4.28 ± 0.0233 µm
Close individual results 3
Sn 4.31 ± 0.145 µm
Sn 4.28 ± 0.145 µm
Sn 4.25 ± 0.144 µm
2022-03-02 2.37 pm
Find My Part
Following parts found
Bracket 5909
33.74974
Select
Retry
Cancel

FT230 technical specifications

Analysis	Details
X-ray tube	Tungsten (W) target microfocus X-ray tube, top-down orientation Maximum 50 kV, 1000 µA, 50 W
Detector	High resolution, large area 50 mm^2 SDD
Primary filters	5 primary filters (2x Al, Ti, Mo, Ni) + 1 open position
Collimators	4 collimators available in rectangular and round sizes from 0.01 x 0.25 mm to 1 mm (0.5 x 10 mil to 40 mil)
Element range	Al (13) - U (92)
Number of layers	Maximum 5 (4 layers plus substrate)
Selectable elements	Free selection
Atmospheric compensation	Automatic temperature and pressure compensation
Atmosphere	Air
Norms	Measurement of coatings by energy dispersive X-ray fluorescence ASTM B568, DIN ISO 3497

Sample positioning	Details
Largest sample size	500 x 400 x 150 mm (19.7 x 15.7 x 5.9")
Stage travel	250 x 200 mm (9.8 x 7.8")
Stage size	900 x 600 mm (35.4 x 23.6"") - motorized stage, slotted chamber 270 x 210 mm (10.6 x 8.2"") - motorized stage, closed chamber 540 x 540 mm (21.2 x 21.2"") - fixed stage
Stage speed (motorized configuration)	80 mm/s (3.1"/s)
Stage precision (motorized configuration)	≤ 5 µm (0.002")
Maximum sample weight	10 kg (22 lb) - fixed stage 5 kg (11 lb) - motorized stage
Z-axis travel	205 mm (8")
Working distance	5 mm (0.2") - nominal, focus laser 5 to 67 mm (0.2 to 2.6") - auto focus/auto approach (option)
Stage, Z-axis control	Software controls and 3-axis joystick with start button (optional)
Focusing	Laser focus (Class 1 laser product), distance independent measurement / auto focus (option), automatic working distance approach (option)
Field of view (camera)	7.1 x 5.3 mm (0.28 x 0.2")
Field of view (wide-view camera, option)	250 x 200mm (9.8 x 7.8")
Positioning assistance	Positioning laser, pre-positioning laser (motorized stage configuration)

Software	Details
User interface	FT Connect
Standard features	Coatings analysis (FP and empirical), bulk materials analysis (FP and empirical), multi-point programming, qualitative mode, data history, diagnostics, ExTOPE Connect Password protected, multiple access levels controlled software
Smart recognition	Find My Part™ (machine vision, QR/barcode scan, text lookup)
Languages	Chinese Simplified, Chinese Traditional, Czech, English, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish
PC specification	Windows 10 64-bit PC

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Our experts are happy to speak with you about specific technical details related to your application.

Dimensions and working environment	Details
Dimensions and working environment	
Dimensions	600 x 815 x 745 mm (23.6 x 32.1 x 29.3"") - closed chamber 900 x 931 x 745 mm (35.4 x 36.7 x 29.3"") - slotted chamber, motorized stage
Weight (excluding PC)	140 kg (308 lb)
Temperature range	10 - 40 oC (50 - 104 oF)
Humidity range	Max 90% relative humidity (non-condensing)
Power requirements	100 - 240 V +/- 10%; 47 - 63 Hz; 1.5 A
Signal tower (option)	3-tier red/yellow/green indicator (X-rays on/shutter open/instrument powered on)

Warranty	Details
Standard duration	1 year
Available options	Extended factory warranty and service contracts

Typical performance for Au/NiP/Cu	Au	NiP
Tested range	0.051 - 0.09 µm (2.00 - 3.55 µin)	2.7 - 5.7 µm (106 - 225 µin)
Standard error	0.025 µm (1 µin) or 5% relative, whichever is greater	0.025 µm (1 µin) or 5% relative, whichever is greater
Precision (2σ) at 30s, 0.3 mm collimator	0.0025 µm @ 0.09 µm (0.099 µin @ 3.55 µin)	0.026 µm @ 5.7 µm, 8 %P (1.02 µin @ 225 µin, 8 %P)

Typical performance for Sn/Ni/Cu	Sn	Ni
Tested range	2.16 - 9.2 µm (85 - 362 µin)	0.97 - 15.1 µm (38 - 595 µin)
Standard error	0.025 µm (1 µin) or 5% relative, whichever is greater	0.025 µm (1 µin) or 5% relative, whichever is greater
Precision (2σ) at 30s, 0.3 mm collimator	0.014 µm @ 4.9 µm (0.55 µin @ 193 µin)	0.036 µm @ 4.7 µm (1.42 µin @ 185 µin)