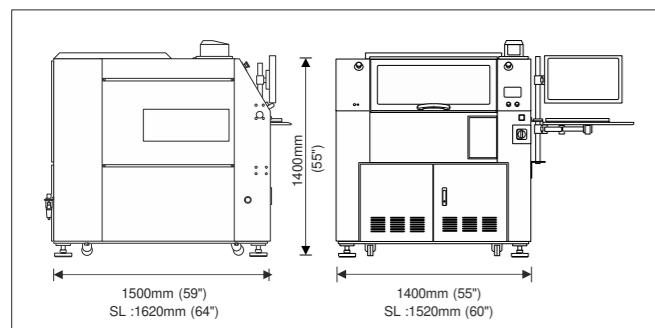


■ General Specifications

Model	APT-1400F	APT-1400F-SL
Flying probes	Standard type : 4 tilted contact probes Standard with single vertical Z type : 4 tilted contact probes, 2 vertical contact probes or 2 IC-open check probes (changeable) Standard with dual vertical Z type : 4 tilted contact probes, 2 vertical contact probes, 2 IC-open check probe	
Flying sensors for LED color test (option)	2 sensors	
Fixed probes/terminals for bottom side	Contact probes : 3 vertical contact probes with magnet base Signal terminals (option) : 8 channels(16 terminals) with function scanner board 3 channels(6 terminals) with power relay board 32 terminals with MDA scanner board IC-open check plate-probes (option) : 8 check plate probes with magnet base	
Motors system for flying probes (XYZ axes)	High speed AC servo motors & control system	
Test time (at 2.5mm pitch movement)	Combination test : Max. 0.02 - 0.03sec./step Single test : Max. 0.05 - 0.06sec./step	Combination test : Max. 0.03 - 0.04sec./step Single test : Max. 0.07 - 0.08sec./step
Positioning resolution of flying probes	X and Y axes : 1.25μm (0.05mil) Z axis : 5μm (0.2mil)	
Positioning repeatability of flying probe ( X/Y axis )	±25 to ±30μm (±1.2mil) in the high precision mode, approx. ±30 to ±35μm (±1.4mil) in the high precision mode, approx.	
Minimum pad size for flying probes	60 to 80μm (2.4 to 3.2mil) in the high precision mode 80 to 100μm (3.2 to 4.0mil) in the high precision mode	
Minimum pad pitch for flying probes	150 to 190μm (6 to 7mil) in use of needle probes ( high precision mode)	
Specifications of contact probes	Type : High precision spring probe, Current rating : 2 A, Tip form : Needle, small 4 -crown, etc.	
Signal sources for board test	DC Voltage/Current generator -1 : ±2mV to ±20V / ±200nA to ±2A <sup>(*)</sup> programmable DC Voltage/Current generator -2 : ±2mV to ±20V / ±200nA to ±2A <sup>(*)</sup> programmable DC Voltage/Current generator -3 (option) : ±10mV to ±80V / ±2μA to ±1A programmable AC Constant Voltage generator : 100mVp-p to 20Vp-p (current limit 10mA p-p to 100mA p-p) programmable f=1Hz to 0.5MHz (Sine, square or triangle wave)	
Measuring range	DC Voltage : ± 2mV to ±80V DC Current : ±200nA to ±2A <sup>(*)</sup> AC Voltage : 150mVrms to 75Vrms / f = 10Hz to 0.5MHz AC Current : 0.7μArms to 70mArms Frequency : 1Hz to 10MHz Resistors : 5mΩ to 50MΩ Capacitors : 0.5pF to 200mF Inductors : 0.5μH to 500H Transformers : Inductance, detection of winding, transmission ratio Forward voltage of PN junction : 0.1V to 40V Zener voltage : 0.1V to 40V (Max.80V, optional) Isolation test : Threshold is programmable from 5Ω to 50MΩ Continuity test : Threshold is programmable from 1Ω to 50KΩ Diodes/Transistors/FETs : Forward voltage of PN junction, ON test, Gain, Static characteristics Relays/Opto couplers/SW devices : ON test Open fault detection of IC leads : Forward voltage measure of PN junction, or IC-open check probes	
Vision test system (Model : TOS-7F)	Video camera : 1/3" CCD color digital type, View field :10 × 8mm (0.42" × 0.32") approx. Light source : Ring-sharped white LED Application : Coordinates alignment, simple vision test, reading of barcode & 2D code, etc. Vision test item : Non-mounted components, components shifting, missing components, polarity, etc. Image registration : Max. 2000 scenes	
Test steps	Max. 35000steps	
Judgment tolerance set	-999.9 to +999.9% or absolute value	
Test area (max.)	L540 × D483mm (21" × 19")	L635 × D610mm (25" × 24")
Testable PCBs specifications	Thickness : 0.6 to 5.0mm (0.024" to 0.2") Component height (max.) : Top side : 60mm (2.4"), Bottom side : 120mm (4.7") Component free-area : 3mm (0.12") or more from front & rear edges (for PCB clamping)	
Embedded PC / OS	Windows® PC (with DVD drive, HD drive, keyboard, mouse) OS : Windows 7 (32bit version)	
Display & Printer	LCD : 1920 × 1080 resolution Printer : Small thermal type (USB connection)	
Power & Air supply	Power : AC200 to 240V(single phase), 50/60Hz, max. 2.8KVA Air : 0.6 to 0.7Mpa (dry clean air)	
Operating environments	Temperature : 16 to 30°C (60 to 86°F) Humidity : 30 to 75% (no condensation)	
Main body dimensions (W×D×H) / Weight	1400×1500×1400mm (55"×59"×55") / 1350Kgs (3000 lb)	1520×1620×1400mm (60"×64"×55") / 1450Kgs (3200 lb)
Option	Lighting unit for test station, Function scanner board, DC ±80V/±1A programmable source & measure board LED color test sensor, Power relay board, MDA scanner board for bottom side, Bottom probe units for extension test IC-open check plate probes for bottom side, etc.	

\*1 : Maximum current are 1A when the function scanner board(option) has not been inserted.  
 ※ The technology and the options under development are included in specifications as of Jan., 2015.  
 ※ Specifications are subject to change without any obligation on the part of the manufacturer.



# APT-1400F APT-1400F-SL

ULTRAFAST SPEED & HIGH PERFORMANCE  
FLYING PROBE TESTER



661-1 Ibara-cho, Ibara-shi, Okayama, 715-8503 Japan  
 Tel. +81-866-62-1870 Fax. +81-866-62-1886  
 URL <http://www.takaya.co.jp/> E-mail: [ie\\_bus@takaya.co.jp](mailto:ie_bus@takaya.co.jp)

The APT-1400F is a next-generation flying probe test system which has unprecedented performance in terms of test speed, positioning accuracy and test coverage. Owing to major improvement in test speed and positioning accuracy, the APT-1400F is capable of having the probes contact extremely small test pads deployed on the latest SMT boards with a high degree of accuracy to test it in a small amount of time. In addition, the APT-1400F is provided with the breakthrough 4-heads & 6-flying probes, the sophisticated measuring system and a number of innovative test capabilities that achieve a real improvement in test coverage and contribute the detection of assembly faults which were previously impossible.

### ULTRAFAST TEST SPEED !!

The state-of-the-art high power & fast-moving driving motor system and the new high-speed communication control contribute speed up test 30 ~ 50% faster than the conventional models. In addition, utilizing 3 bottom probe units makes combination test more efficient and cut the test time down.



### BREAKTHROUGH 4-HEADS & 6-FLYING PROBES SYSTEM

In addition to the four standard moving probes which are installed diagonally to the board under test, the APT-1400F is designed to use other two Z axis units(option) where either probe or IC-open test probe can move up and down vertically. The vertical Z axis units enable to get access to the test points where are hard for the standard moving probes to do that and also enable to contact the location at different height with accuracy. In addition, it's possible to directly contact the through-holes and the head of connector pins by using dagger and inverse cone head type of probe, resulting in increased test coverage.

### SAFE AND HIGHLY ACCURATE MEASUREMENT SYSTEM

The APT-1400F incorporates 16-bit DC 4-quadrant sources & measurement system and AC programmable generator which is also finding uses as function generator in the measuring unit, so that the tester is capable of applying the best suited measuring signals according to specification of each electronic component and the circuit conditions and realizes the circuit test and dynamic characteristics test. Also, the dedicated measuring mode for very small capacitance and the high measuring accuracy circuit give aid to detect wide range of assembly faults.

### STRONG AND RIGID XY STAGE

The tester's XY stage, crucial to stable and accurate probe contact, is made of highly polished native granite, as well as the APT-9xxx series which is thought of as the global standard model of the flying probe testers. In addition, the structure of the XY stage has been completely reviewed according to faster moving speed of the probes and the precision components adopted in the tester have the quality to last long. Also the positioning accuracy is finely tuned tester by tester. Therefore, the APT-1400F ensures the superfast movement of the probes and also increases the positioning accuracy by 25% comparing to the conventional models.

### APT-1400F-SL

The APT-1400F-SL is slightly larger than APT-1400F and offers the test area up to L635 x D610mm (25" x 24").



### ATTENUATING CONTACT PRESSURE OF PROBES

The APT-1400F has enough ability to freely control the probing speed just before it contacts. This enables to minimize the probing marks on small and sensitive test lands without the need to slow down the movement all the way to the bottom.

### COLORLED TOS SYSTEM AND REAL MAP

The APT-1400F is equipped with new vision test system TOS-7F corresponding to color images as standard. Owing to the megapixel color digital camera and the ring illuminations with high-intensity white LED, the TOS-7F can import sharp color image to detect missing, wrong orientation and positioning error on the spot. In addition, the TOS-7F can not only import the barcodes (include 2D codes) but also offer color identification test, OCR function and Library function which are supported by the optional software. Also, the APT-1400F is equipped with the colored Real map function which is of remarkable help to check and modify the contact points during debugging the programs.

### IN-LINE APPLICATION

An in-line model can be built-to-order to establish full automated operation in your production line or rack-to-rack system. To meet various user's needs, it's possible to provide the conveyor installed with buffer stations to cut down the transport time as much as possible and an auto-conveyor width adjustment unit.

### TEST ABILITY IN A CONSTANT STATE OF EVOLUTION

### TEST ABILITY IN A CONSTANT STATE OF EVOLUTION

The APT-1400F serves its customers with versatile option boards and software that achieves their particular needs, such as the LED color test system that tests color and brightness of LED devices on the board under test, the Boundary testing and the Functional testing. In addition, the tester will have even more advantages to enhance its test coverage and speed up test although they are currently under development.

### EASY & USER-FRIENDLY SOFTWARE AND SECURITY FUNCTION

The software builds up with easy-to-follow operation menu and is provided with versatile functions which reflect the opinions of our users from more than 40 countries, such as Menu-customized function, Multi-language display function(option), Data library function(option) and storage function that can maintain a history of automatic settings, operation and so on. All those features give aid to cut down your time to programming test and manage the test programs in safety.

