GeneTitan™ Multi-Channel Instrument

Catalog Numbers 00-0372, 00-0373, 00-0370, and 00-0465

Publication Number MAN0025571 Revision B.0

Introduction

Thermo Fisher Scientific developed this document to help you through the process of preparing your laboratory to ensure a prompt and successful installation of the GeneTitan™ Multi-Channel (MC) Instrument (Cat. No. 00-0372 or 00-0373), GeneTitan™ MC Scanner, or GeneTitan™ MC Fast Scan Instrument (Cat. No. 00-0370 or 00-0465). This site preparation guide applies to the GeneTitan™ Multi-Channel Instrument and the GeneTitan™ Fast Scan Instrument.

In preparing your site for the installation of the GeneTitan™ MC Instrument, please note the following:

- Suitable preparation of your laboratory is essential to a successful installation.
- Work with your facilities personnel as needed to ensure that your laboratory meets the minimum electrical and other environmental requirements outlined in this document.

After your site location meets all of the requirements outlined in this document, your laboratory is suitable for installation of your new GeneTitan™ MC Instrument. At that time:

1. Complete the *GeneTitan™ Multi-Channel Instrument Site Preparation Checklist*, Pub. No. MAN0025663 and provide a signed copy to the Customer Concierge for your region.
2. Upon receipt of this written confirmation, Thermo Fisher Scientific contacts you to schedule the installation of your GeneTitan™ MC Instrument.

IMPORTANT! Do not unpack the shipping container prior to the arrival of a Thermo Fisher Scientific representative. The information in this document is provided for reference purposes only.

Customer Concierge contact information

Note: If your site or region is not covered by customer concierge service, contact your local Thermo Fisher Scientific service and support representatives for site preparation and instrument installation.

We are here to help. Send your questions to:

Location	Concierge for your region
North America	AMER.Concierge@themofisher.com
Europe, Middle East, and Africa	EMEA.Concierge@thermofisher.com
Asia-Pacific and Japan	APJ.Concierge@thermofisher.com

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Note: Complete the *GeneTitan™ Multi-Channel Instrument Site Preparation Checklist*, Pub. No. MAN0025663, then click **Submit** at the bottom of the checklist to send the form to your Concierge team. If your region is not supported by one of the teams listed above, email the completed checklist to your field application scientist.

Receive and inspect the shipment

Carefully inspect the shipping containers.

Report any damage to the shipping company and to Thermo Fisher Scientific personnel.

Record any damage or mishandling on the shipping documents.

IMPORTANT! Do not unpack shipping containers at this time. To protect yourself from liability for damage that occurred during shipping, inspect the shipping containers and report damage as described above.

Note: GeneTitan™ MC Instrument installation and training items which require special handling and storage may be shipped separately.

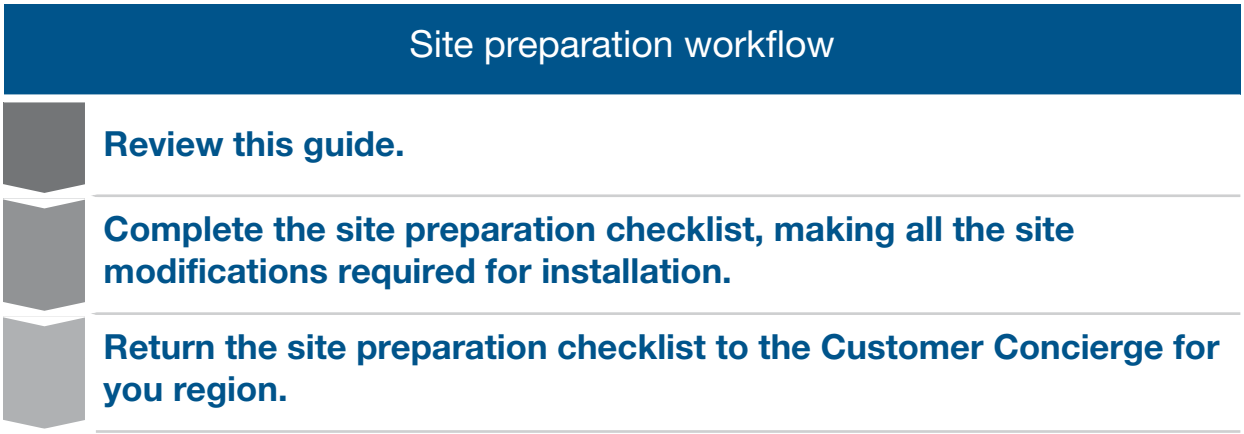
CAUTION! PHYSICAL INJURY HAZARD. Do not attempt to lift or move shipment crates or packages without the assistance of others using appropriate equipment. Improper lifting can cause painful and permanent back injury. Depending on the weight, moving or lifting an instrument may require 2 or more people.

CAUTION! Do not tip the packages or crates on end. Tipping can damage the hardware and electronics.

Site preparation workflow

IMPORTANT! Thermo Fisher Scientific does not install, service, or repair products in area designated BioSafety Level 3 (BSL-3) or BioSaftey Level 4 (BSL-4).

A Thermo Fisher Scientific service representative contacts you to schedule the installation. Before the shipment and installation date can be scheduled, you must perform the following tasks.



Installation and qualification

Before installation, a Thermo Fisher Scientific representative contacts you to provide system information and site preparation materials for your use.

When installation is complete, service representatives calibrate the system instruments, perform run verification and system qualification, and review data with you to get it approved. For additional information on application training, contact your Field Application Scientist.

Customer responsibilities

Personnel	Responsibilities and tasks to perform before the installation date
Site preparation/ installation coordinator	• Reviews the site preparation guide for site requirements. • Coordinates personnel and tasks. • Selects the installation site and coordinates with facilities personnel to address any modifications to the site that are required for installation. • Reviews the checklists with the applicable personnel to verify that the site is properly prepared. • Reviews the checklists with the service representative to verify that the site is properly prepared. • Receives and inspects the packaged shipment. • With assistance from Thermo Fisher Scientific personnel, unpacks and stores the reagents and consumables according to the specifications indicated on the package labels or product information sheets. • Schedules the installation and informs personnel of the installation day. • Ensures that the site is clear of unnecessary material on the installation day. • Is available to assist service representatives throughout installation.
Laboratory safety representative	• Reviews the site preparation guide for safety information. • Ensures that the required safety practices and equipment are in place. • Is available at all times while the service representative is at the installation site.
Laboratory personnel/ primary users	• Reviews the safety information. • Ensures that all customer-provided materials for installation and instrument performance verification (IPV) are present and stored appropriately at the site. • Ensures that primary users (responsible for training other users) are available for qualification-document review and approval during instrument qualification (IQ), operation qualification (OQ), and IPV.
Facilities personnel	• Ensures that the installation requirements are met for the installation site. – Space at the installation site – Building clearances – Humidity and temperature – Waste collection – Electrical supply – Compressed air supply – Computers – Safety and installation materials • Are available to assist service representatives and laboratory personnel. • If needed, ensures that at least 2 people are available to help service representatives move and position system components.

Personnel	Responsibilities and tasks to perform before the installation date
Network or IT specialist	• Ensures that active, tested local area network (LAN) connections are in place. • Ensures that network hardware is compatible with an RJ45-type connector. • If necessary, supplies additional cables. • Is available during installation to connect the system components to the network. • If applicable, provides and installs a network or dedicated printer. ⚠ **CAUTION!** Do not connect the product components to the network before the service representatives arrive.

GeneTitan™ MC Instrument and components

The GeneTitan™ MC Instrument comprises several components for processing Applied Biosystems™ high-throughput array plates. Thermo Fisher Scientific provides the following system components:

- GeneTitan™ MC Instrument
- Workstation
- Monitor, Mouse, and Keyboard.
- External barcode reader
- Applied Biosystems™ GeneChip™ Command Console™ Software (GCC)
- APC Smart UPS 1500
- Hygrometer
- Lambda LS Xenon Arc Lamp Illuminator System
- Lambda SC *Smart*Shutter™ Control System
- Spare xenon lamp
- Glass bottles for Wash A, Wash B, DI water, and waste
- GeneTitan™ Bottle Rack

Table 1 Components and consumables included with the GeneTitan™ Multi-Channel Instrument (Cat. No. 00-0372, 120V and 00-0373, 230V).

Quantity	Description	Part No.
4	GeneTitan™ Scan and Stain Tray Cover	202757
2	Wash Buffer A	900721
1	Wash Buffer B	900722
1	GeneTitan™ Scan Tray	900746
1	GeneTitan™ Hybridization Tray	900747
1	GeneTitan™ Stain Tray	901334
1	GeneTitan™ MC Fluidics Station 96F	00-0356
1	GeneTitan™ MC Scanner	00-0370
1	GeneTitan™ MC Fast Scan	00-0465
1	Cermax™ Xenon Arc Lamp	01-0740
1	UPS 1.5KVA 120V (for SKU 00.0372), or UPS 1.5KVA 230V (for SKU 00.0373)	73-0044, or 73-0045

Pre-installation requirements

Site preparation is essential for a successful installation of your instruments. Prepare your laboratory before the installation date. See page 21.

Before you install the instrument system, the system requires:

- Appropriate power connections for the GeneTitan™ MC Instrument.
- Facility-supplied clean dry air (CDA) supply. See Facility CDA on page 12.
- A compatible network system for transferring the data to a remote data storage location.
- Adequate space for the dimensions of the GeneTitan™ MC Instrument and benchtop to sustain the total weight, with available service access.
- An area for the crates near the laboratory. After the GeneTitan™ MC Instrument is on-site, ensure that the shipping skid and associated boxes are near the laboratory installation location. This equipment must be unpacked only by a Thermo Fisher Scientific representative.
- Two people with proper access to the loading dock and pallet jacks to move the system and associated boxes to a location near the laboratory for unpacking by a Thermo Fisher Scientific representative.
- An antistatic gun to deionize the plastic consumable stain tray covers prior to processing array plates on the instrument. Order the GeneTitan™ ZeroStat AntiStatic Gun, Cat. No. 74-0014 from Thermo Fisher Scientific.

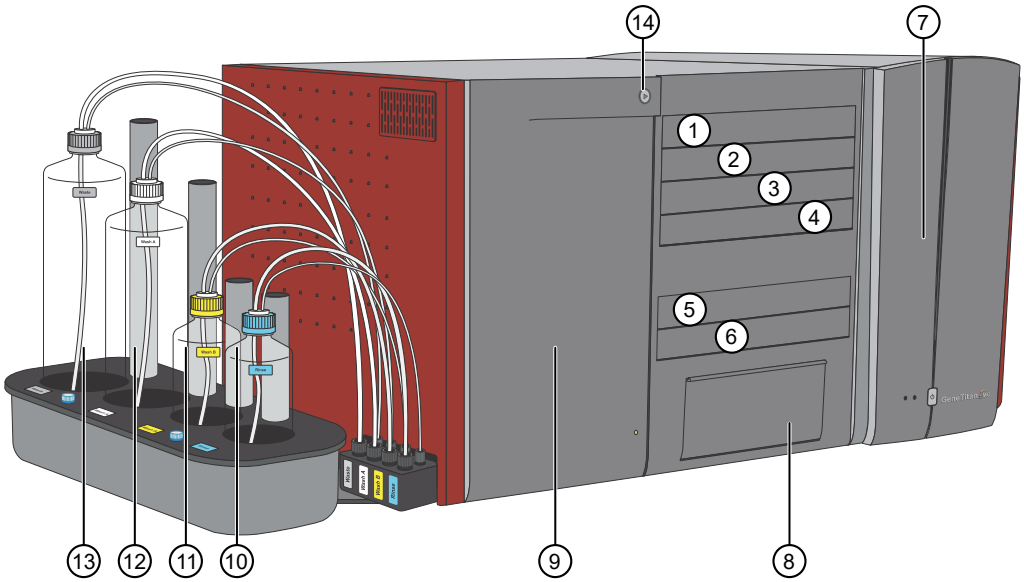
Components and connections

IMPORTANT! Please contact Thermo Fisher Scientific technical support when moving the workstation or adding and removing USB devices. The GeneTitan™ MC Instrument can stop working if you do not take adequate precautions, or if you do not properly follow instructions.

CAUTION! Removing or adding connections without the presence of an Thermo Fisher Scientific Field Service Engineer voids the instrument warranty. The uninterruptible power supply (UPS) provided with the GeneTitan™ MC Instrument must not supply power to any devices other than those associated with the GeneTitan™ MC Instrument. Plugging a device such as a GeneChip™ Hybridization Oven 640 or GeneChip™ Hybridization Oven 645 into the GeneTitan™ MC Instrument UPS affects the power recovery modes for the GeneTitan™ MC Instrument.

GeneTitan™ MC Instrument

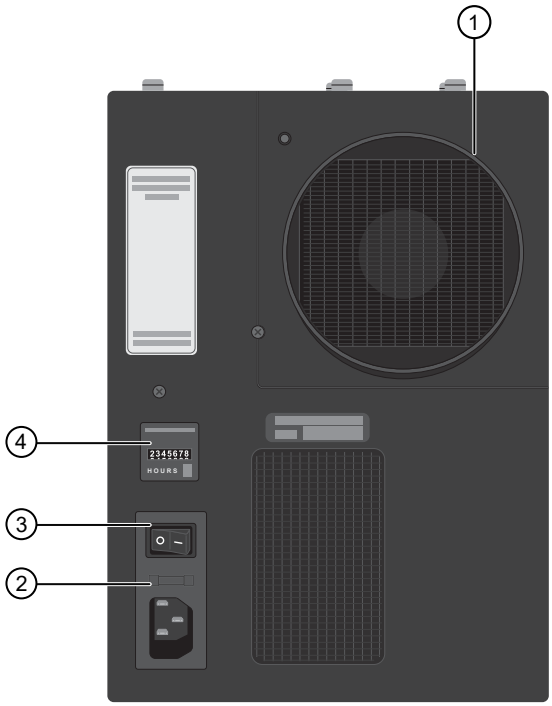
The GeneTitan™ MC Instrument front components consist of the following items:



1. Input/Output Drawer 1
2. Input/Output Drawer 2
3. Input/Output Drawer 3
4. Input/Output Drawer 4
5. Input/Output Drawer 5
6. Input/Output Drawer 6
7. Imaging device
8. Trash door to waste chute (for used materials such as plate covers)
9. Fluidics unit
10. Rinse bottle containing de-ionized (DI) water
11. Wash B bottle
12. Wash A bottle
13. Waste bottle for drained buffers and residual reagents
14. Confirmation button (to open/close drawers)

Xenon arc lamp

The Lambda LS xenon arc lamp consists of the following features:



① Flange for 4-inch hose
② Fuse
③ Power switch
④ Hour meter

Site requirements

The proposed laboratory site must be suitable for the GeneTitan™ MC Instrument.

IMPORTANT! A qualified Thermo Fisher Scientific representative must uncrate and install the GeneTitan™ MC Instrument components. Facilities personnel must be assigned and available to assist the representative.

Transportation details and requirements

- Loading dock or a delivery truck with a lift gate
- The GeneTitan™ MC Instrument is packed on 2 pallets:
  - One pallet contains the GeneTitan™ fluidics unit, bottle box, and barcode reader.
  - One pallet contains the GeneTitan™ Imaging Device, workstation, and monitor.
- Transportation to final location: elevator with 1,200 lb (545 kg) capacity
- Cushioned rolling cart: approx 344.2 lb (156.1 kg) capacity. This is the weight of the 2 uncrated instruments not including the monitor, workstation, bottle box, and barcode reader.

- Doorway with suitable dimensions. If the instrument is transported in the crate, Thermo Fisher Scientific recommends that all doorways and passages along that path should be at least 5 feet (152.4 cm) wide to clear a standard ISO pallet (48.00 inches x 40.00 inches or 1,219 mm x 1,016 mm). Verify the pathway dimensions.

IMPORTANT! If doorways do not meet the minimum specified width, the Thermo Fisher Scientific service representative needs access to the shipping/receiving area. Access to the area allows for the instrument to be unpacked from the crate and moved to the final location on a rolling cart. The service representative needs at least 2 people (4 people is optimal) to lift the instrument from the crate and place it onto the cart. Thermo Fisher Scientific *strongly recommends using a lift to unpack and move the instrument*.

Laboratory workbench requirements

- The GeneTitan™ MC Instrument requires a laboratory workbench with a hard, stable surface.
- Do not place the instrument on a rolling cart or a workbench with a soft surface such as wood.
- The workbench surface must be level (front and back) to within ±0.5 degrees. This means the maximum allowable workbench tilt from front to back of the instrument must not exceed ±0.5 degrees.
- The workbench must be capable of bearing the weight of the instrument (500 lbs) including the instrument accessories that include 4 bottles with reagent buffer, a workstation monitor, and a keyboard.
- The workbench surface must be constructed of material that does not bend or deform under the weight of the instrument.
- The dimensions of the workbench must be at a minimum 92 inches (width) and 45 inches (depth) to hold the instrument, accessories, monitor, and keyboard.

GeneTitan™ MC Instrument customers in the USA can order an appropriate table from the following company. Tables can be customized to have a space for the monitor, keyboard, and power sockets.

Bench depot

Table catalog number HF3696

Recommended table dimensions: 96 inches x 36 inches x 36 inches

Tel: 888 700 9888

www.benchdepot.com

Configured system dimensions and connections

At the installation site, verify that there is sufficient space and air circulation to accommodate the GeneTitan™ MC Instrument. See the following diagram for space dimensions.

WARNING! Never allow the free flow of air to be restricted.

- The instrument footprint is 33 inches (83.82 cm) deep x 55 inches (139.7 cm) wide x 26 inches (66 cm) high.
- Additional clearance 12 inches (30.48 cm) to the left and 12 inches (30.48 cm) to the back. There must be 25 inches (63.5 cm) space to the right of the instrument for the 20 inch workstation monitor, keyboard, mouse, external barcode reader, and Lambda LS xenon arc lamp.
- Computer workstation: Space on floor for CPU tower.

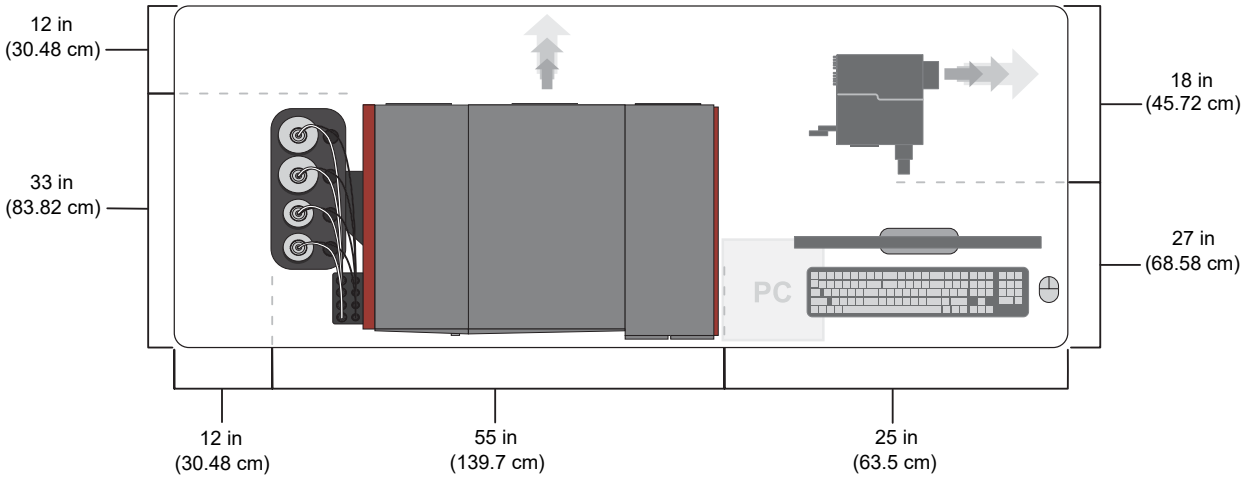


Figure 1 Workbench overhead view with required airflow clearance.

Electrical outlets

- Wall outlet: One separate, dedicated grounded outlet within 4 feet (1.22 m) of the instrument (for the UPS connection).
- UPS outlet requirements: 110 VAC, 50/60 Hz, 20 Amps (NA/Japan), and 230 V (international).

Network requirements

The GeneTitan™ MC Instrument will be installed and tested in non-networked mode. If you later want to connect the workstation to a network, arrange for your network services department to prepare for attachment in other ways. If your network policies require that the name of the workstation be changed, inform the Thermo Fisher Scientific service representative so that the workstation software can be reconfigured accordingly.

Antivirus software

An antivirus software package is pre-installed on the instrument workstation. This software package is validated for use with the GeneTitan™ MC Instrument. Use of any other antivirus software package can interfere with normal instrument operation.

Microsoft™ Windows™ operating system automatic updates

Disable all automatic updates and automatic adjustment to daylight saving time in the Microsoft™ Windows™ operating system. Failure to follow this requirement can result in failures during array processing.

Clean dry air (CDA)

The GeneTitan™ MC Instrument requires an oil-free, clean dry, regulated air supply to 70 psi to operate the fluidics unit. The CDA source can be made available through facility CDA or through a portable oil-free compressor.

Facility CDA

If the GeneTitan™ MC Instrument is connected to a facility CDA, the airflow rate should be 34 L/min (1.2 cfm) at 70 psi.

Portable CDA

If your laboratory does not have access to facility CDA, operate the GeneTitan™ MC Instrument by using the required portable oil-free compressor for the CDA supply.

The GeneTitan™ MC Instrument will operate only with the Werther International™ portable compressor with the Werther International™ silencing cabinet, which has been configured for use with the GeneTitan™ MC Instrument (Model Number: PC2/50/379D that contains the compressor, air receive, dryer, and silencing cabinet). The silencing cabinet reduces the noise levels by 20 dB/A.

The Werther International™ air compressor model can be purchased from Thermo Fisher Scientific using the part numbers listed in Table 2. Contact your Thermo Fisher Scientific sales representative to order this item. Additional supplier information is also provided in Table 2 for reference. Each Werther International™ (Model Number: PC2/50/379D) includes the following:

- 13-gallon air tank
- 5.54 CFM air output
- Supply of clean dry instrument-grade air
- Silencing enclosure with cooling fans
- Noise level 56 dB/A
- Max pressure 120 psi

Table 2 Input power voltage requirements for Model PC2/50/379D (Compressor + Air Receiver + Dryer + Silencing Cabinet).

Werther International™ model number	Input power	Thermo Fisher Scientific Cat. No.[1]	Werther International™ Cat. No.
PC2/50/379 115V	115 V / 60 Hz	90-1103	M57391
PC2/50/379 220/50Hz	220 V / 50 Hz	90-1104	M57311
PC2/50/379 220/60Hz	220 V / 60 Hz	90-1105	M57321

[1] Contact a Thermo Fisher Scientific sales representative for a quote.

- The outlet pressure for the compressor should be set to 70 psi. The maximum tank pressure should be 120 psi, and the pressure for recharging the tank should be set to 92 psi.

The Werther International™ air compressor is available from:
Werther International™
8614 Veterans Memorial Drive
Houston, TX 77088
(www.werther.com)

Werther International™ has the capability to drop-ship from their distribution centers in the US and Europe. For the rest of the world, Werther International™ ships from the US.

CDA connection

The following parts are included for connecting the GeneTitan™ MC Instrument to the CDA source:

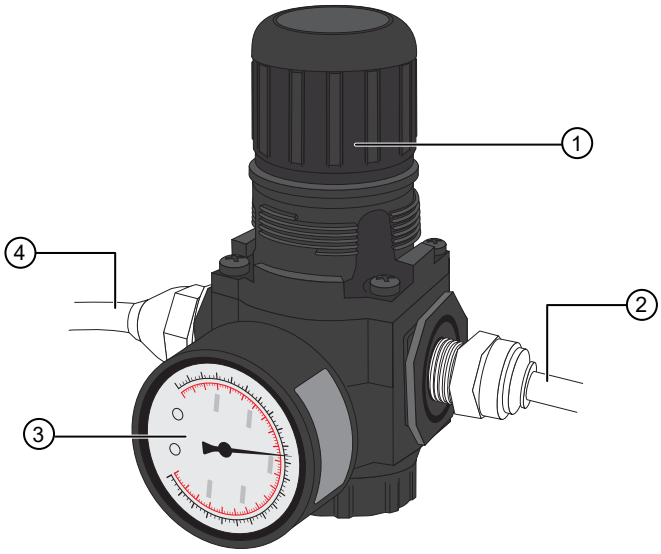
- Air supply tube, 0.25 inch (6 mm) OD, polyethylene, maximum 150 psi (for example, Grainger™ 4HM13).
- Regulator (for example, Speedaire™ 4ZM14), 0–120 psi (0–6,206 mm Hg).
- Pressure dial (for example, Grainger™ 5WZ07), size 1.5 inch (38.1 mm), range 0–160 psi (0–8,274.4 mm Hg, connection size 1/8 (0.125) inch (3.175 mm) NPT, smallest graduation 5 psi, accuracy ±3-2-3%.
- Male connector, 0.25 inch (6 mm) tube OD, max pressure 150 psi (for example, Grainger™ 1WTG3).
- Tee, union, 0.25 inch (6 mm) tube OD, max pressure 150 psi (for example, Grainger™ 4HN16).
- Straight adapter 3/8 (0.375) inch (9.525 mm) tube OD, max pressure 150 psi (for example, Grainger™ 1WRT2).

Note: The GeneTitan™ MC Instrument system includes a 50-foot tube. The CDA outlet must be able to reach the GeneTitan™ MC Instrument. If your site requires longer tubing, please notify your Thermo Fisher Scientific representative.

IMPORTANT! The air flow rate is 34 L/min (1.2 CFM) at 70 psi.

CDA regulator

The regulator is shown for illustration purposes only. Actual equipment may differ.



① The pressure adjustment knob
② Clean dry air to GeneTitan™ MC Instrument
③ Pressure gauge
④ Clean air source

Exhaust and venting requirements

Stain reagents are used in array processing on the GeneTitan™ MC Instrument. Your facility must determine if industrial hygiene monitoring or engineering controls such as exhaust and fume hoods are required to meet local regulatory requirements. See the appropriate safety data sheets (SDSs) for information on the stains used during the array-processing stage of the assay.

IMPORTANT! Ensure that the fans inside the instrument are always working properly and that air is being vented outside the instrument. You must be able to feel the airflow coming out of the instrument. The air flow must be unrestricted and directed away from any person working in the laboratory. See the *GeneTitan™ Multi-Channel Instrument User Guide* (Pub. No. MAN0027694) for the preventative maintenance activity that is required to ensure proper airflow.

Recycling plastic consumables

The plastic consumables used for array processing are made from LEXAN™ HP1-1H112 resin (polycarbonate). Follow appropriate recycling practices for the array plate consumables to meet your local regulatory requirements.

Hygrometer

A Hygrometer (Pub. No. 66-0006) ships with your GeneTitan™ MC Instrument. A hygrometer is an instrument used to measure the temperature and humidity in the air. This unit keeps a log of this information that can be retrieved using a USB stick. The hygrometer is a stand-alone instrument and does not interact with the GeneTitan™ MC Instrument. The suggested probe placement is in the lower rear of the fluidics module. It should be positioned away from any air vents or fans from other instruments that would interfere with accurate measurement.

Recommended settings for the hygrometer are as follows: Relative Humidity (30—80%), Temperature (5—23.9°C), Data Logging interval (10 minutes). Further information about the hygrometer is available at the following link: **https://www.traceable.com/traceabler-excursion-tractm-datalogging-humidity-thermometer.html#product_tabs_Instructions**

GeneTitan™ MC Instrument specifications

The following tables list the important specifications for the GeneTitan™ MC Instrument and its components.

GeneTitan™ MC Instrument system specifications

Item	Parameter	Value
Weight (free-standing, uncrated)	GeneTitan fluidics unit	~182 lb (82.6 kg)
	GeneTitan Imaging Device + Xenon Arc Lamp	~127 lb (57.6 kg) + 16 lb (7.26 kg) = 143 lb (64.9 kg)
	Total weight	**~325 lb (147.4 kg)**
Dimensions	Width	55 inches (139.7 cm)
	Depth	33 inches (83.82 cm)
	Height	26 inches (66 cm)
Power (imaging device)	Power@Voltage/Current	100 V / 6.2 A
		240 V / 2.6 A
	Line frequency	50–60 Hz
Power (fluidics unit)	Power@Voltage/Current	100 V / 3.7 A
		240 V / 2.2 A
	Line frequency	50–60 Hz
Working environment (*indoor use only*)	Temperature	5°–23.9°C (41°–75°F)
	Humidity	Maximum relative humidity 80% for temperatures up to 24°C (75.2°F)
		Minimum humidity 30 ±7% relative humidity

(continued)

Item	Parameter	Value
Working environment (*indoor use only*)	Clearance	6 inches (15.24 cm) at rear 12 inches (30.48 cm) on left side 25 inches (63.5 cm) on right side
	Pollution degree	2 environment
	Installation category	II
	Altitude	<2,000 m
Electrical supply	Provide voltage, frequency, and power rating per unit label. Circuit breaker.	
Main supply voltage fluctuations	Mains supply voltage fluctuations up ±10% of the nominal supply voltage. (Transient overvoltages typically present on the mains supply.)	

Lambda SC *Smart*Shutter™ and Control System specifications

Item	Parameter	Value
25mm (1”) *Smart*Shutter™	Height (from motor top to shutter bottom)	3.88” (9.86 cm)
	Motor end (top)	1.06” W x 1.88” D (2.69 cm W x 4.78 cm D)
	Shutter end (bottom)	2.88” W x 0.66” D (7.32 cm W x 1.68 cm D)
	Weight	0.6 lb (9.6 oz) 0.27 kg
Controller	Dimensions	5.38” x 5.86” x 8.25” (13.67 cm x 14.88 cm x 20.96 cm)
	Weight	2.55 lb (2 lb., 9 oz.) 1.16 kg
Electrical	Input voltage (mains)	115 V, 60 Hz 230 V, 50 Hz
	Mains fuse (rear of cabinet)	5 x 20 mm glass tube, T1.0A, 250V, IEC 60127-2, Sheet III (for example, Bussmann™ GDC-1A or Littelfuse™ 218 001)
	Power cord	10 A, 250 V, with safety ground plug

Lambda SC controller cables

Cable	Connector type	Cable type	Cable max. length
*Smart*Shutter™	DB-9 male to DB-9 female	Minimum of 26 awg stranded wire with 500 V load capacity. Two ferrites are attached, 1 at each end.	10 feet (approximately 3 meters)
Serial	DB-9 female to DB-9 male	Connected to metal faceplates of connectors on both ends. One ferrite is attached at one end.	
USB	A to B	Dielectric separation of circuits. Foil shielding.	

Lambda LS xenon arc lamp system specifications

Parameter	Value
Output range	320–700 nm (standard, ozone-free bulb)
Radiant ouput	50 watts (broadband, full beam) for 300 W bulb
Lamp type	300 W Xenon, pre-aligned to produce collimated output
Lamp life	Lamp warranted for 500 hours; expected lifetime: 500 hours
Dimensions (H x W x D)	10.5” x 9.5” x 10” (26.7 cm x 24.1 cm x 25.4 cm)
Weight	10.5 lb. (4.8 kg)
Electrical	
Mains voltage	110–240 V, 50–60 Hz
Maximum power consumption	300 W
Power cord	10 Amp, 250 V, with safety ground plug
Mains fuse (rear of cabinet)	5 Amp, 250 V, 5 x 20mm, Time-delay fuse (EC 60127-2) (For example, Bussmann™ GDC-5A or S506-5A (RoHS), or Littelfuse™ 218.005 or 218.005.P (RoHS))

Safety warnings and requirements

GeneTitan™ MC Instrument hazards

Hazard	Present?	Description
Chemical	No	—
Control	No	Control software
E-Fields	No	—
Electrical	Yes	100–240 V power
Ergonomic	Yes	User interface
Explosion	Yes	• High internal pressure exists in any xenon arc lamp. • Buffer and DI water bottles are pressurized to 5 psi.
Gas	No	—
Heat	Yes	Maximum heat generated is 300 W.
H-Fields	No	—
Laser	Yes	Hazard present if you remove the system enclosure. Hazard also present with external barcode reader.
Mechanical	Yes	The instrument is heavy.
Noise	No	—
Ozone	No	—
Pneumatic	Yes	Clean dry air for operating the fluidics unit in the system.
Radiation	Yes	The infrared and ultraviolet radiation generated by this lamp can cause significant skin burns and eye damage.
Temperature	Yes	Integrated hybridization oven and fluidics unit.
Ultrasonic	No	—
Vibration	No	—

WARNING! To avoid physical injury while the GeneTitan™ MC Instrument is powered on and emitting light, *do not look directly into the light guide!* The output of the light or the light guide should be directed into the microscope using the appropriate adapters, directed away from anyone's eyes, and not directed toward any reflective surface.

WARNING! *Never allow the free flow of air to be restricted.*

Safety practices

A safety representative from your facility must ensure that:

- Personnel establish and follow all applicable safety practices and policies to protect laboratory personnel from potential hazards.
- All applicable safety devices and equipment are available at all times.

Required safety equipment

Your laboratory has specific safety practices and policies designed to protect laboratory personnel from potential hazards that are present. Follow all applicable safety-related procedures at all times.

The following safety equipment and protection from hazards must be available at the installation site:

- Protection from any sources of hazardous chemicals, radiation (for example, lasers, radioisotopes, radioactive wastes, and contaminated equipment), and potentially infectious biological material that may be present in the area where the service representative will work.
- Appropriate fire extinguisher:
  - You are responsible for providing an appropriate fire extinguisher for use on or near the equipment.
  - The types and sizes of fire extinguishers shall be suitable for use on electrical and chemical fires as specified in current codes, regulations, and/or standards, and with approval of the Fire Marshall or other authority having jurisdiction.
  - The installation of appropriate fire extinguishers shall be in addition to other fire-protection systems and not as a substitute or alternative to them.
- Eyewash
- Safety shower
- Eye and hand protection
- Adequate ventilation, including vent line/fume hood, if applicable
- Biohazard waste container, if applicable
- First-aid equipment
- Spill cleanup equipment
- Applicable Safety Data Sheets (SDSs)

Materials for installation and operational verification

Included materials

IMPORTANT! The Axiom™ GeneTitan™ Installation Kit (Cat. No. 901841) and GeneTitan™ OV Plate Kit (Cat. No. 902621TS) are shipped to arrive on-site at (or near) the completion of system installation. Ensure that all items are stored according to the following table.

Part number	Reagent	Quantity required for IPV	Storage temperature	Purpose
902621TS	GeneTitan™ OV Plate Kit	1	–25°C to –15°C	IPV
Components of the Axiom™ GeneTitan™ Installation Kit (Cat. No. 901841)				
901278	Axiom™ RGT Kit - Module 4-1 96F	1	–25°C to –15°C	IPV
901276	Axiom™ RGT Kit - Module 4-2 96F	1	2.0°C to 8.0°C	IPV
901608	Axiom™ GWH-96 Array Plate Box	1	2.0°C to 8.0°C	IPV
901446	Axiom™ Wash Buffer A	2	Room temperature	IPV
901447	Axiom™ Wash Buffer B	1	Room temperature	IPV
901578	Axiom™ Water Module 3	1	Room temperature	IPV
901606	Axiom™ GeneTitan™ Consumables Kit	1	Room temperature	IPV
901446	Axiom™ Wash Buffer A	2	Room temperature	Installation
901447	Axiom™ Wash Buffer B	1	Room temperature	Installation
901578	Axiom™ Water Module 3	1	Room temperature	Installation

Required materials not supplied

The following materials are not included with your order of the GeneTitan™ MC Instrument and must be purchased or provided separately. Ensure that you have these items before operational verification or qualification of the system (IPV).

Unless otherwise indicated, all materials are available through thermofisher.com. "MLS" indicates that the material is available from fisherscientific.com or another major laboratory supplier.

Note: If you plan to purchase a plate centrifuge, please discuss with your Thermo Fisher Scientific representative for options and details.

Item	Quantity required	Source
Laboratory freezers (–25°C to –15°C)	1	MLS
Laboratory refrigerator (2°C to 8°C)	1	MLS
Plate centrifuge (200 x *g* at room temperature) Or Refrigerated centrifuge (3,200 x *g* at 4°C) with an appropriate rotor/bucket combination (required for application training)	1	MLS
GeneTitan™ MC Instrument (IQ-OQ completed)	1	
Bench or table for staging reagents and plates during IPV	1	
Calibrated thermal cycler for denaturation of samples for IPV Axiom 2.0 Denature protocol: 1. 95°C 10 minutes 2. 48°C 3 minutes 3. 48°C hold	1	MLS
Single-channel pipettor (200 µL), calibrated	1	MLS
Single-channel pipettor (1,000 µL), calibrated	1	MLS
Multichannel pipettor (200 µL), calibrated	1	MLS
Laboratory mixer, vortex or equivalent	1	MLS
Pipette tips for P200	3x96 tips	MLS
Pipette tips for P1000	0.25x96 tips	MLS
Microcentrifuge	1	MLS
Ice bucket for thawing reagents	1	MLS
Tube racks for 50-mL conical tubes	1	MLS

(continued)

Item	Quantity required	Source
96-well clear half-skirted PCR plate (as needed for transfer of hybridization-ready target, based on thermal cycler compatibility) • MicroAmp™ EnduraPlate™ Optical 96-Well Clear Reaction Plates with Barcode (Cat. No. 4483354) • or Bio-Rad™ HSS9601	1	**MLS**
MicroAmp™ Clear Adhesive Film (alternative: Bio-Rad™ MSB1001)	2 seals	4306311
Serological pipettes (10 mL)	5	**MLS**
50-mL conical tubes	1	**MLS**
15-mL conical tubes	3	**MLS**
25-mL reagent reservoir	5	**MLS**

Operation materials

Additional supplies and consumables are necessary for routine operation. Contact a sales representative to order these additional supplies. Use only supplies as specified by Thermo Fisher Scientific.

Related documentation

Document	Publication number
GeneTitan™ Multi-Channel Instrument User Guide	MAN0027694
GeneTitan™ Multi-Channel Instrument Site Preparation Checklist	MAN0025663

Customer and technical support

Visit **thermofisher.com/support** for the latest service and support information.

- Worldwide contact telephone numbers
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  - Product FAQs
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  - Training for many applications and instruments
- Order and web support
- Product documentation
  - User guides, manuals, and protocols
  - Certificates of Analysis
  - Safety Data Sheets (SDSs; also known as MSDSs)

  Note: For SDSs for reagents and chemicals from other manufacturers, contact the manufacturer.

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Revision	Date	Description
B.0	13 July 2023	Updated to include GeneTitan™ MC Fast Scan Instrument.
A.0	11 January 2022	Initial release in Thermo Fisher Scientific document control system. Supersedes legacy Affymetrix™ publication number 08-0305. Updated to the current document template, with associated updates to trademarks, logos, licensing, and warranty. Added Customer Concierge contact information.