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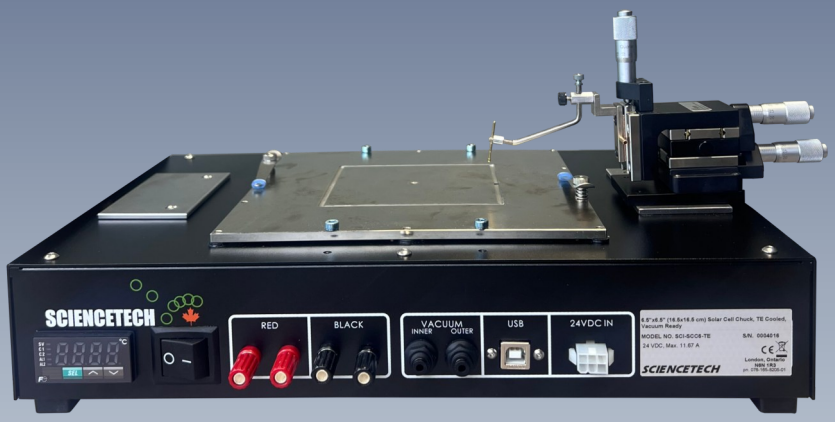
SCIENCETECH
Making Light Work Better



Features

- Convenient accessory for photovoltaic cell characterization
- Chucks holding a maximum of 3.5", 6", and 12" solar cells
- Uncooled, thermoelectric temperature control, and liquid cooled options
- Multiple probe options such as gold or tungsten, and micrometer adjust
- Vacuum hold down ready
- "Flippable" cells for back illumination with front probe contact
- Compatible with all Sciencetech Solar Simulators

Image is SCC-6-TE cell chuck and SCP-MP-G probe station

Solar Cell Chucks and Accessories

MADE IN CANADA
FABRIQUÉ AU CANADA

TDB 32.14 Version 2.2 2025-09-25

Solar Cell Chucks and Accessories

OVERVIEW

Sciencetech's solar cell chucks are available in several sizes and feature a number of options to best suit your application. Cell chucks can accommodate devices up to 30 cm by 30 cm (12 inches by 12 inches) and have options for liquid or thermoelectric cooling, back illumination, back contact, and vacuum hold down. We offer several complementary accessories, such as probe stations, vacuum pumps, and water recirculators for liquid cooling.

We also offer custom cell chucks to accommodate specialized testing designs. Please contact us for more information on custom chucks and accessories.

How to determine the correct cell chuck?

What is your solar cell size?

Is cooling required? How much power dissipation?

Is temperature control required? What temperature range?

Is front or back illumination required?

Would you like vacuum hold down for the device under test?

Are you intending to use it in a Sciencetech PTS system?

CELL CHUCKS

The SCC-6-TE cell chuck (above) can accommodate various probe stations and vacuum hold down as accessories. Above cell chuck also features a custom rotation accessory.

Part Number	Model	Maximum Cell Size	Temperature Control Available	Vacuum Compatibility	Illumination Direction	Compatible with PTS
165-8315	SCC-3	90 mm (3.5")	Uncooled	Compatible	Front	No
165-8216	SCC-3-B	76 mm (3")	Uncooled	Not compatible	Back and Front	No
165-8231	SCC-3-PTS	90 mm (3.5")	Uncooled	Compatible	Front	No
165-8310	SCC-3-TE	90 mm (3.5")	TE cooled	Compatible	Front	Yes
165-8230	SCC-3-TE-PTS	90 mm (3.5")	TE cooled	Compatible	Front	Yes
165-8305	SCC-6	150 mm (6")	Uncooled	Compatible	Front	No
165-8222	SCC-6-B	150 mm (6")	Uncooled	Not compatible	Back and Front	No
165-8300	SCC-6-L	150 mm (6")	Liquid cooled	Compatible	Front	No
165-8215	SCC-6-L-F	150 mm (6")	Liquid cooled	Not compatible	Front and Back, Flipping	No
165-8226	SCC-6-TE	150 mm (6")	TE cooled	Compatible	Front	No
165-8206	SCC-12	300 mm (12")	Uncooled	Compatible	Front	No
165-8207	SCC-12-L	300 mm (12")	Liquid cooled	Compatible	Front	No

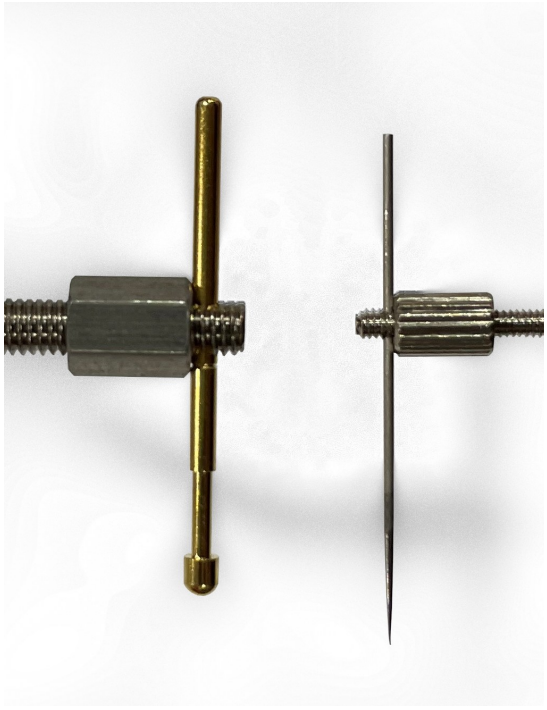
Solar Cell Chucks and Accessories

PROBE STATIONS

Probe Stations

Sciencetech cell chucks are designed to be used with our probe stations. All cell chucks can take measurements from the bottom of the test cell, but we have a number of options for top surface probes.

For most applications, the gold-plated spring probes are a good choice. These probes gently contact the cell's surface with a spring-loaded, rounded probe tip.
However, for smaller cells where very precise placement is required, the tungsten needle-tip probes are recommended. These probes have a very sharp, precise tip that can be placed on small contacts with great accuracy. This probe type is suggested for the micro-positioning high-precision probe stations or any application where the device under test will be very small.



Gold spring tip probe (left,) and tungsten needle-tip probe (right)

Part Number	Model	Number of Probes	Probe Type	Base Type	Travel	Adjustment Type
165-8210	SCP-2T	2	Tungsten Needle-tip	Screw-attached	70 mm (2.75")	Manual
165-8209	SCP-2G	2	Gold-plated Spring	Screw-attached	70 mm (2.75")	Manual
165-8211	SCP-4T	4	Tungsten Needle-tip	Screw-attached	70 mm (2.75")	Manual
165-8214	SCP-4G	4	Gold-plated Spring	Screw-attached	70 mm (2.75")	Manual
165-8212	SCP-MP-T	1	Tungsten Needle-tip	Magnetic	12.7 mm (0.5")	Micrometer
165-8219	SCP-MP-G	1	Gold-plated Spring	Magnetic	12.7 mm (0.5")	Micrometer
165-8213	SCP-SP-T	1	Tungsten Needle-tip	Magnetic	7.6 mm (0.3")	Screw
165-8220	SCP-SP-G	1	Gold-plated Spring	Magnetic	7.6 mm (0.3")	Screw

Solar Cell Chucks and Accessories

TEMPERATURE CONTROL

Temperature Control

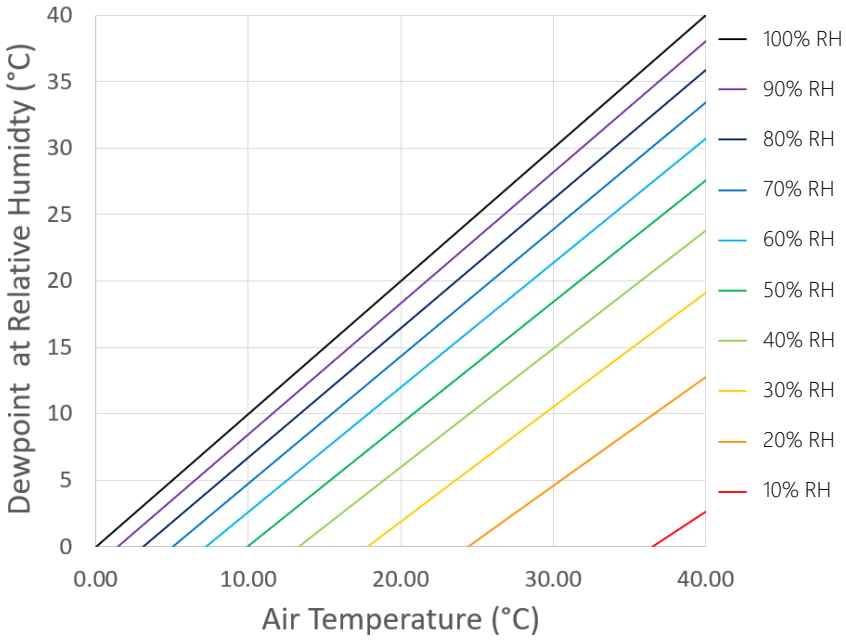
Part Number	Model	Electrical	Cooling Medium	Temperature Control	Cooling Capacity
165-8265	TC-1000-220	220 VAC	Liquid (Cooling only)	Programmable 1 - 50°C	800 W
165-8266	TC-1000-120	120 VAC	Liquid (Cooling only)	Programmable 1 - 50°C	800 W
165-8021	130-REC	120 VAC / 220 VAC	Liquid	Passive (to Ambient)	500 W
165-8010	160-REC	120 VAC / 220 VAC	Liquid	Passive (to Ambient)	900 W
165-8037	210-REC	120 VAC / 220 VAC	Liquid	Passive (to Ambient)	2500 W

Passive cooling chills the chuck to the ambient temperature. The TC-1000 will cool the chuck to a programmed temperature but will not heat it; the desired temperature must be below the ambient temperature.

Please note that we recommend using the manufacturer's coolants for best performance and to maintain warranty.

The 160-REC (left) cools to the ambient temperature.

Temperature Control is Affected by Dew Point



The minimum achievable temperature by a temperature controlled cell chuck is governed by the dew point. The dew point is the temperature at which the air will be saturated by its ambient water vapour content. Thus, the relative humidity (RH%) and temperature of the air governs the minimum achievable temperature by the cell chuck. Using the adjacent curve, one can estimate the dew point at each RH% and air temperature. As an example, the minimum achievable temperature at an RH% of 50% and air temperature of 25°C is about 14°C.

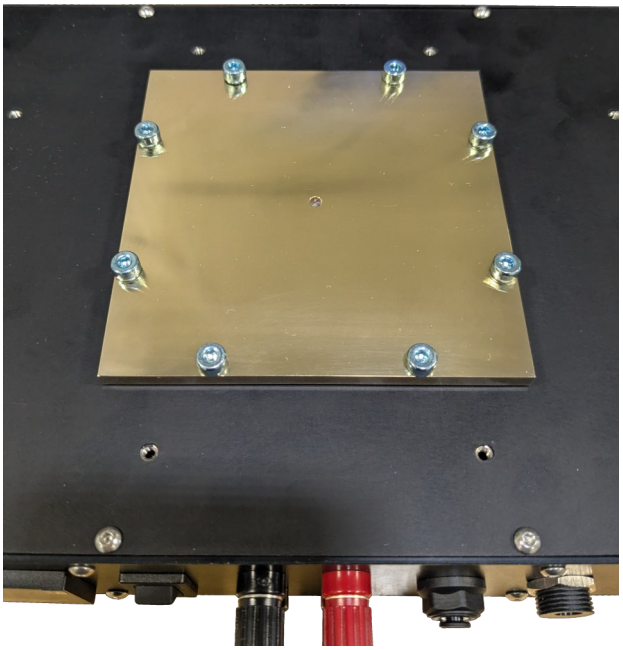
Solar Cell Chucks and Accessories

ACCESSORIES

Gold Plating Upgrade

Gold plating is available as an upgrade for our solar cell chucks. A gold coating provides a highly inert surface with low contact resistance, and is a good choice for highly accurate measurements or applications where little particle shedding from the chuck surface is required.

Our standard nickel chucks provide a durable surface that is very mechanically stable, though they have higher contact resistance than gold.



SCC-3 (above) with gold plating upgrade

Part Number	Compatible Cell Chucks	Description
165-8255	SCC-3	Gold plating upgrade for SCC-3 cell chucks
165-8256	SCC-6	Gold plating upgrade for SCC-6 cell chucks
165-8257	SCC-12	Gold plating upgrade for SCC-12 cell chucks

Vacuum Hold Down

A device under test can be held to the surface of the cell chuck using vacuum, avoiding the need for adhesives or other materials that may be inconvenient or may interfere with measurements. For 76 mm (3") cells or smaller, the SCC-VP can provide hold down. For larger cells, the SCC-VPME1 is required.

SCC-VP vacuum pump (right) for cells up to 76 mm (3")

Part Number	Model	Maximum Cell Size	Vibration Noise
165-8217	SCC-VP	76 mm (3")	Considerable
165-8267	SCC-VPME1	300 mm (12")	Minimal

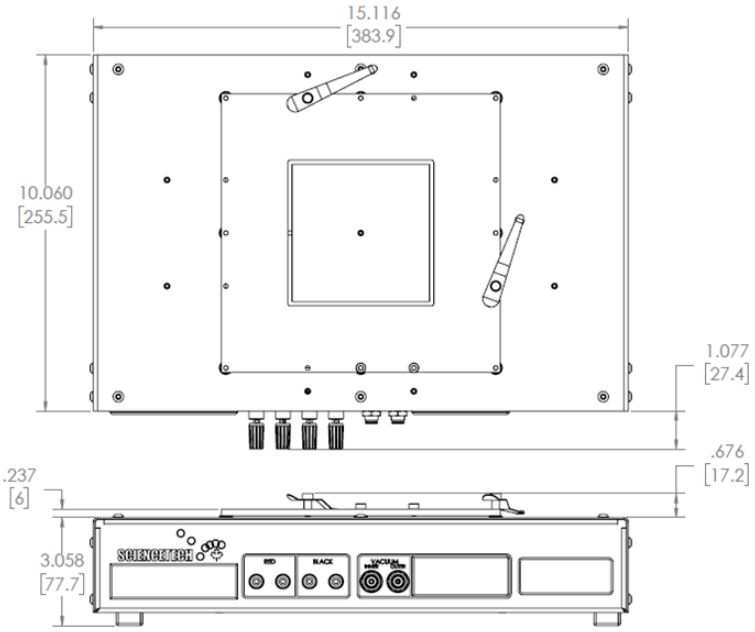
Solar Cell Chucks and Accessories

DIMENSIONS

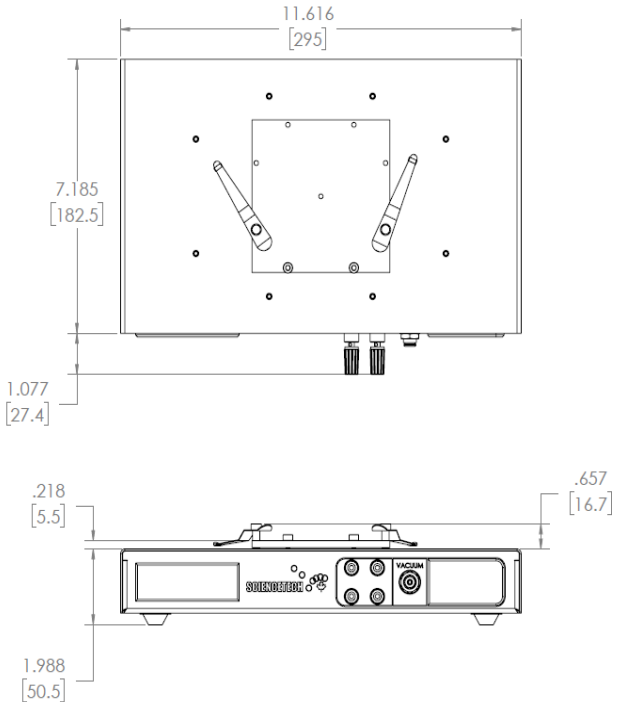
Cell Chucks

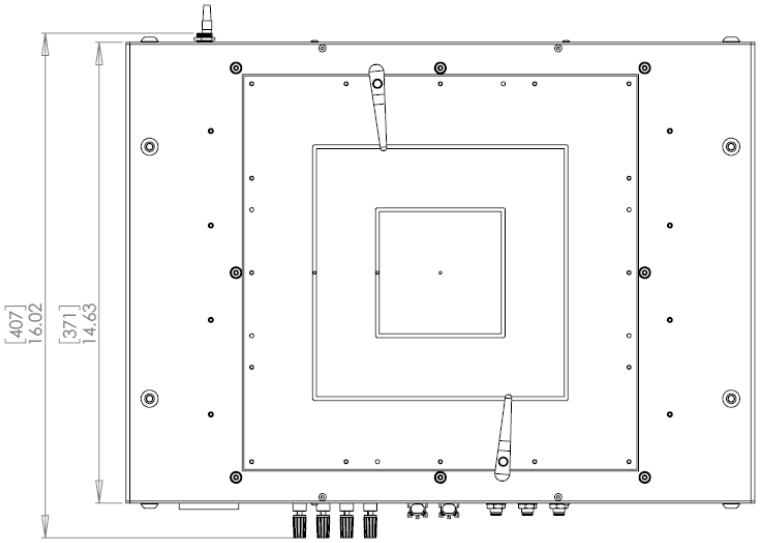
Measurements are in inches [mm]

SCC-6 (165-8305), SCC-6-TE (8226), SCC-6-L (165-8300)

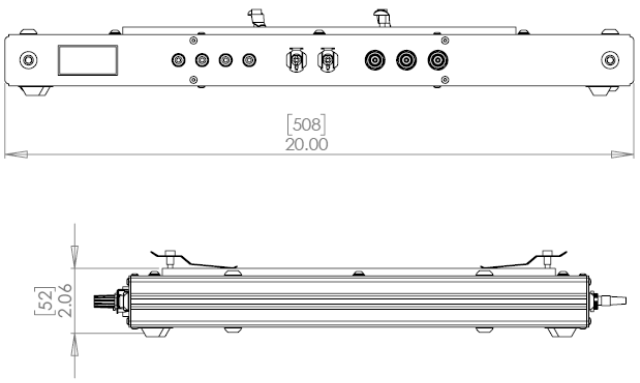


SCC-3 (165-8315), SCC-3-TE (165-8310)





SCC-12 (165-8206), SCC-12-L (165-8207)



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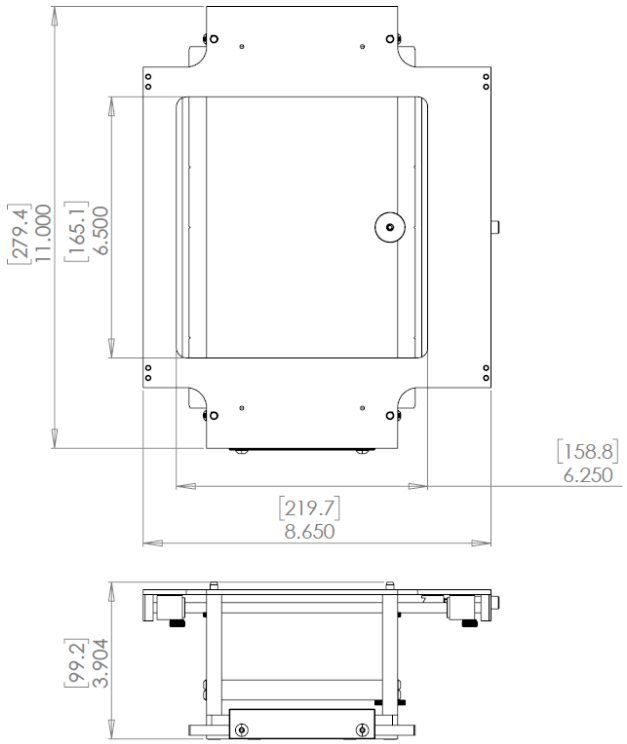
Solar Cell Chucks and Accessories

DIMENSIONS

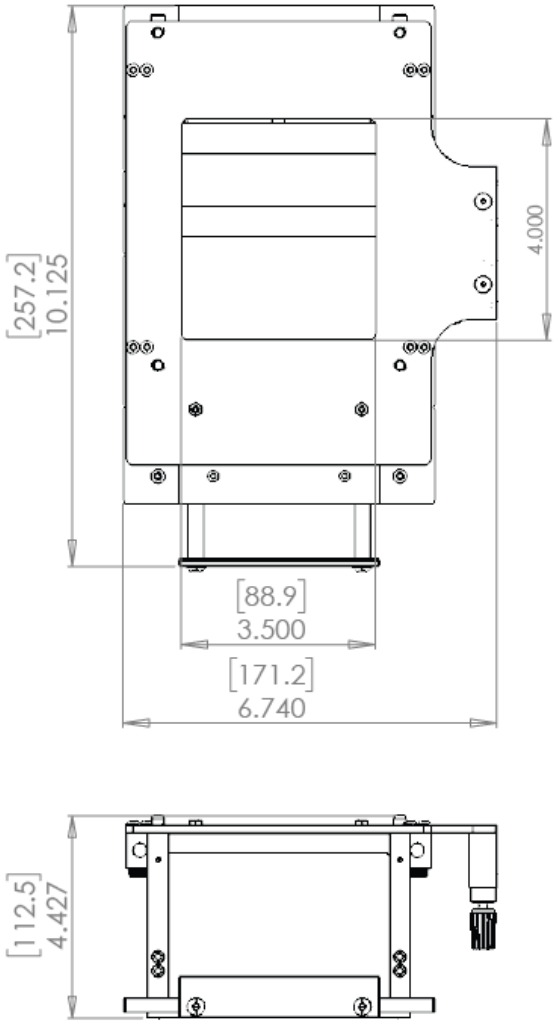
Cell Chucks

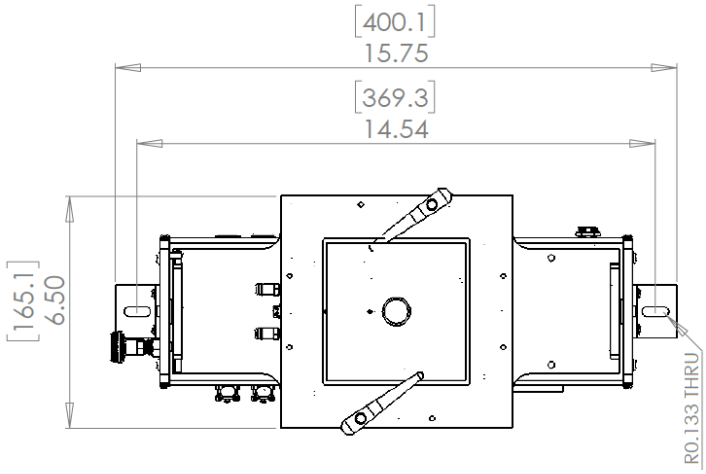
Measurements are in inches [mm]

SCC-6-B (165-8222)

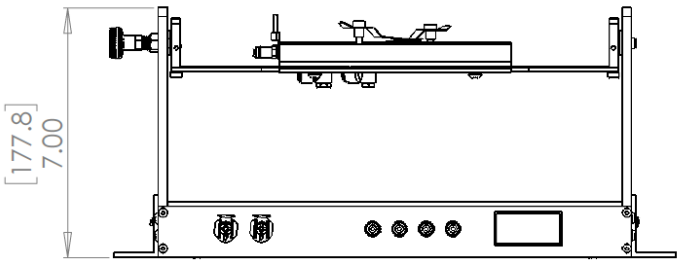


SCC-3-B (165-8216)





SCC-6-L-F (165-8215)



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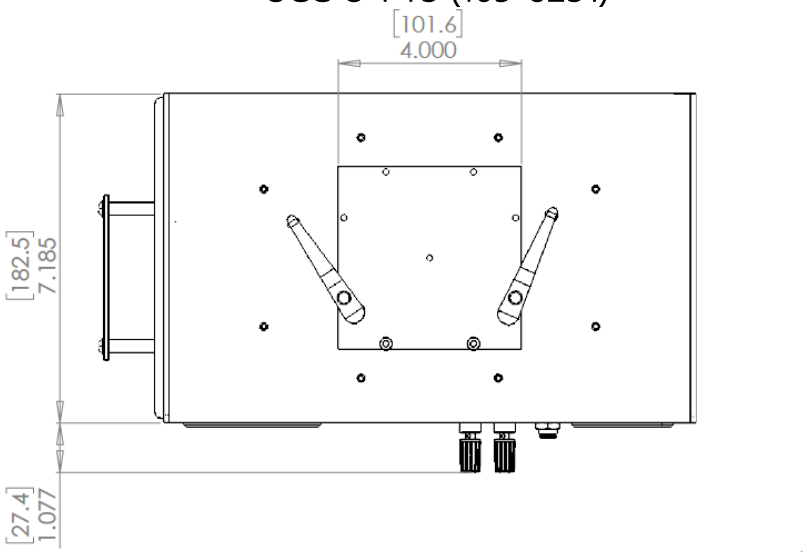
Solar Cell Chucks and Accessories

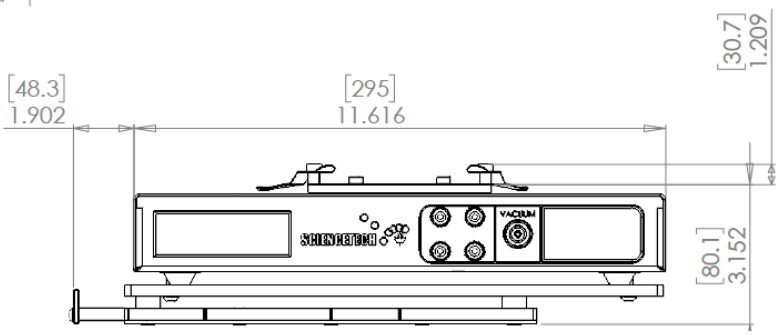
DIMENSIONS

Cell Chucks

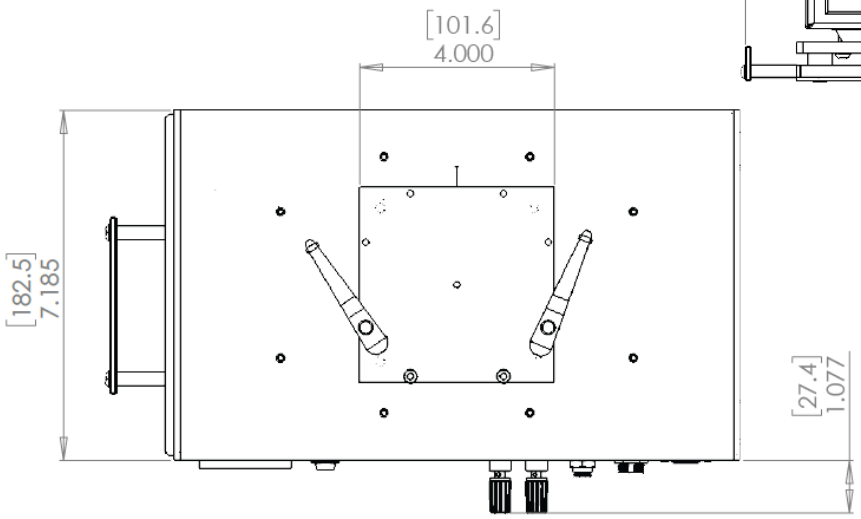
Measurements are in inches [mm]

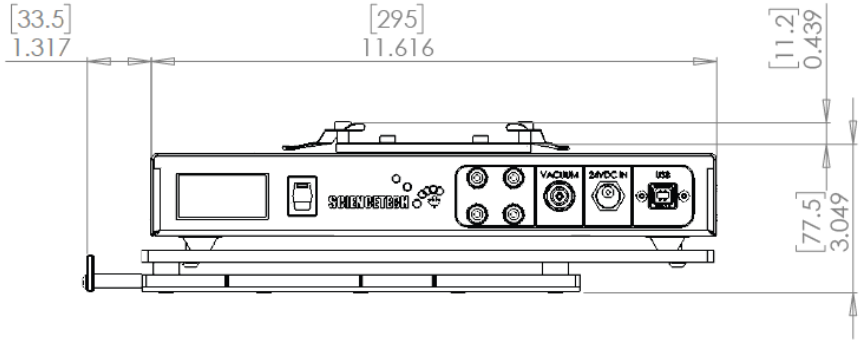
SCC-3-PTS (165-8231)





SCC-3-TE-PTS (165-8230)





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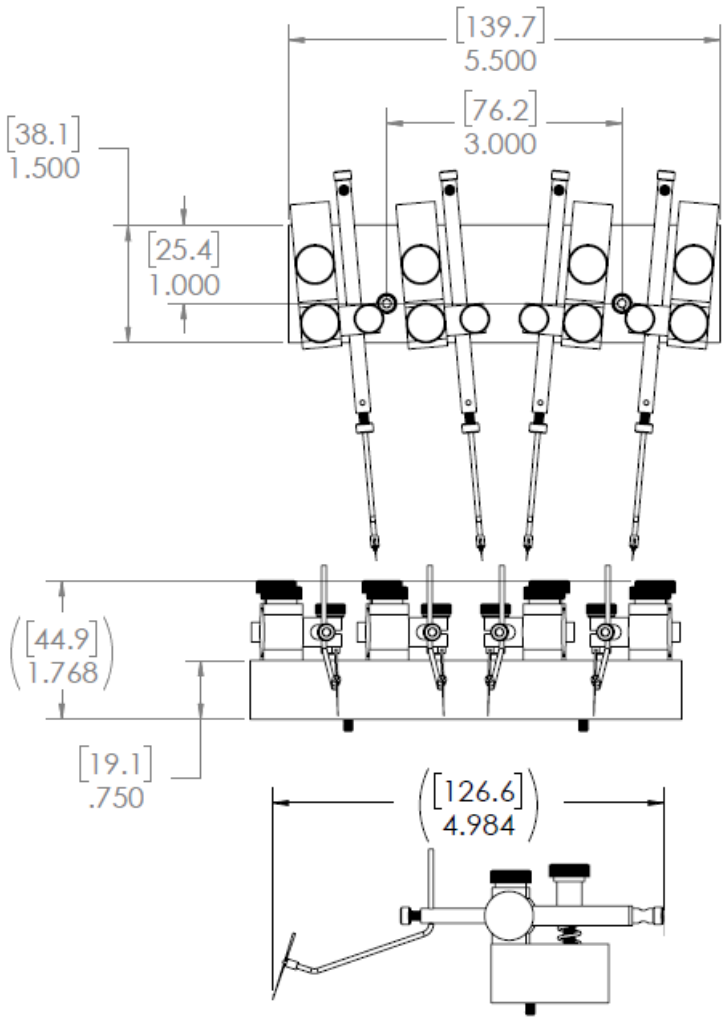
Solar Cell Chucks and Accessories

DIMENSIONS

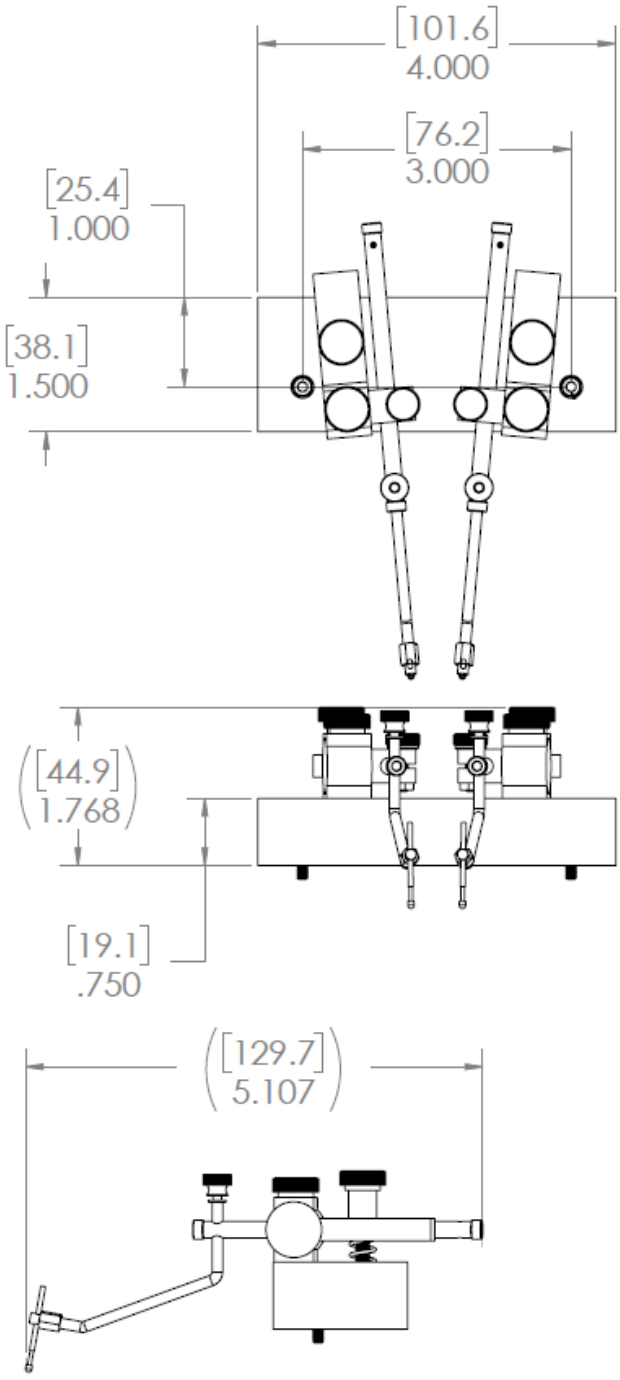
Probe Stations

Measurements are in inches [mm]. Dimensions are the same between gold and tungsten tip versions of each probe station.

SCP-4T (165-8211)



SCP-2G (165-8209)



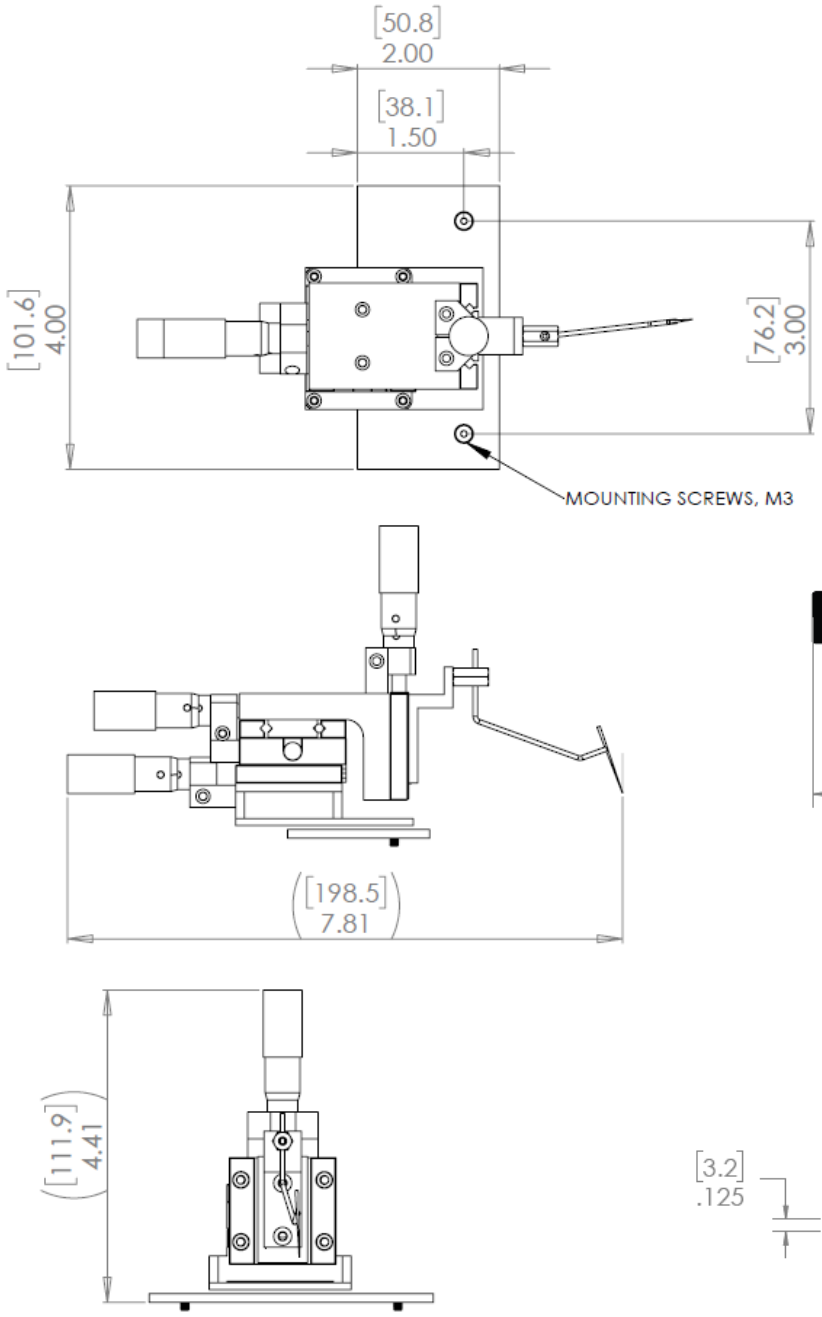
Solar Cell Chucks and Accessories

DIMENSIONS

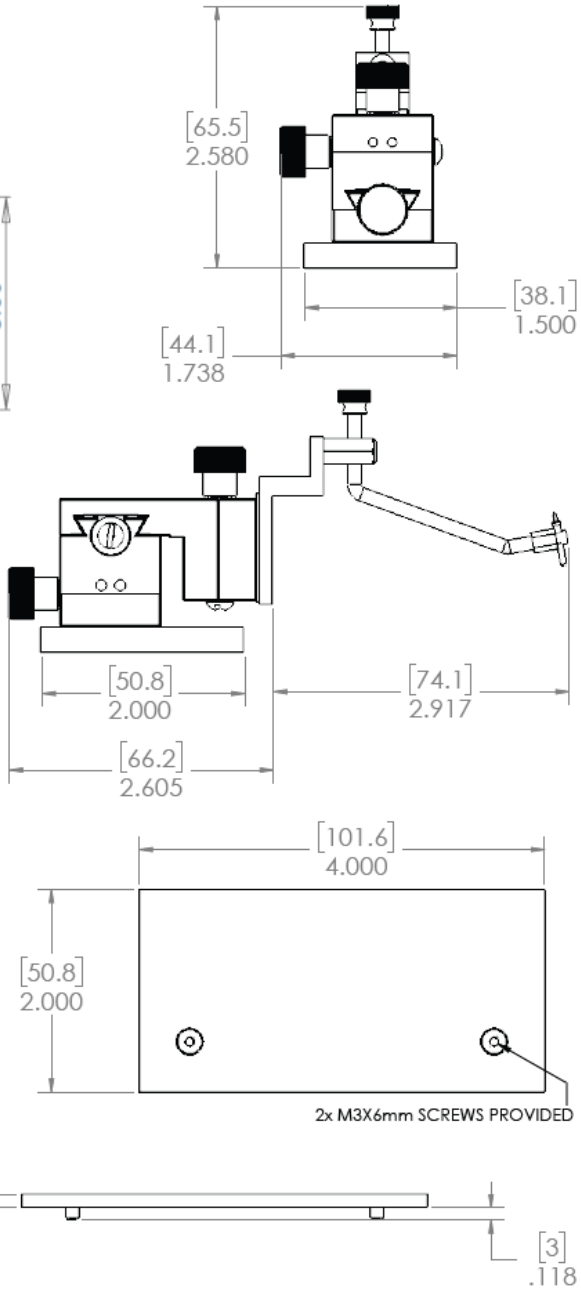
Probe Stations

Measurements are in inches [mm]. Dimensions are the same between gold and tungsten tip versions of each probe station.

SCP-MP-T (165-8212)



SCP-SP-T (165-8220)



Solar Cell Chucks and Accessories

ORDERING INFORMATION

Model	SKU	Description
SCC-3	165-8315	9 × 9 cm (3.5" × 3.5") Solar Cell Chuck, Uncooled, Vacuum Ready
SCC-3-B	165-8216	9 × 9 cm (3.5" × 3.5") Solar Cell Chuck, Uncooled, Rear Contact
SCC-3-PTS	165-8231	9 × 9 cm (3.5" × 3.5") Solar Cell Chuck, Uncooled, Vacuum Ready For PTS Systems
SCC-3-TE	165-8310	9 × 9 cm (3.5" × 3.5") Solar Cell Chuck, TE Cooled, Vacuum Ready
SCC-3-TE-PTS	165-8230	9 × 9 cm (3.5" × 3.5") Solar Cell Chuck, TE Cooled, Vacuum Ready, for PTS Systems
SCC-6	165-8305	15 × 15 cm (6" × 6") Solar Cell Chuck, Uncooled, Vacuum Ready
SCC-6-B	165-8222	15 × 15 cm (6" × 6") Solar Cell Chuck, Uncooled, Rear Contact
SCC-6-L	165-8300	15 × 15 cm (6" × 6") Solar Cell Chuck, Liquid Cooled, Vacuum Ready
SCC-6-L-F	165-8215	16.5 x 16.5cm (6.5" x 6.5") Solar Cell Chuck, Liquid Cooled, Reversible
SCC-6-TE	165-8226	15 × 15 cm (6" × 6") Solar Cell Chuck, TE Cooled, Vacuum Ready
SCC-12	165-8206	30 × 30 cm (12" x 12") Solar Cell Chuck, Uncooled, Vacuum Ready
SCC-12-L	165-8207	30 × 30 cm (12" x 12") Solar Cell Chuck, Liquid Cooled, Vacuum Ready
SCP-2T	165-8210	Probe Station, 2 Probes, Tungsten Needle-tip Probes
SCP-2G	165-8209	Probe Station, 2 Probes, Gold Spring Probes
SCP-4T	165-8211	Probe Station, 4 Probes, Tungsten Needle-tip Probes
SCP-4G	165-8214	Probe Station, 4 Probes, Gold Spring Probes
SCP-MP-T	165-8212	Probe Station, Micrometer-Adjustable Micropositioning, Magnetic Base, Tungsten Needle-Tip Probe
SCP-MP-G	165-8219	Probe Station, Micrometer-Adjustable Micropositioning, Magnetic Base, Gold Spring Probe
SCP-SP-T	165-8213	Probe Station, Screw-Adjustable Micropositioning, Magnetic Base, Tungsten Needle-tip Probe
SCP-SP-G	165-8220	Probe Station, Screw-Adjustable Micropositioning, Magnetic Base, Gold Spring Probe
TC-1000-120	165-8265	Water Recirculating Chiller, 120 VAC
TC-1000-220	165-8266	Water Recirculating Chiller, 220 VAC
130-REC	165-8021	Water Recirculating Cooler, 500 W capacity
160-REC	165-8010	Water Recirculating Cooler, 900 W capacity
210-REC	165-8037	Water Recirculating Cooler, 2500 W capacity
SCC-VP	165-8217	(SCC-VP) Vacuum Pump For Solar Cell Chucks, Up to 76 mm
SCC-VPME1	165-8267	(SCC-VPME1) Vacuum Pump for Solar Cell Chucks, 76 mm+