



Concentric Technology Solutions Inc

Solutions for the Wireless Industry

TC-5922BPU

Pneumatic Shield Box

Data Sheet

Concentric Technology Solutions, Inc.

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Introduction

TC-5922BPU is a high RF shield box capable of shielding up to 12 GHz for small to medium-sized wireless devices. Unlike other shield boxes, this device's pneumatic lid features a unique operating mechanism that opens and closes in an up-and-down motion. In addition to shielding traditional 2.5 GHz technologies like WIFI, Zigbee, and Bluetooth, this shield box supports a range of up to 12 GHz to enable testing on forward-looking technologies such as 5G, UWB, and WIFI 6E variants. The rectangular shape of TC-5922BPU is a popular option for those looking to test cell phones, tablets, and laptops with a modular input-output design allowing for easy customization, along with simple to read pass-fail indicators. The box can be operated remotely via remote control, while additional features like the dual pressure control lid and sensor ensure enhanced user safety.

Features

- Reliable high RF shielding from 0.1 GHz to 12 GHz
- Pneumatic control of lid open/close and optional test fixture motions
- EMI filters on all data ports and power lines
- Easily customizable to suit various test needs
- Red and green LEDs for PASS/FAIL indication
- Remote operation by RS-232C / Ethernet

Mechanical Specifications

Standard RF Connector	Two (2), N(f) outside and SMA(f) inside
Line Voltage	24 VDC, Max. 2 A
Power Consumption	Max 1.5 W
Remote Control	Ethernet, RS-232C, 3 wire DB9(s)
Air Connections	
Main Connector	6 mm OD hose, one-touch push-on fitting
Fixture Control Connector	6 mm OD hose, one-touch push-on fitting
Input Air Pressure	5 to 10 bar
Dimensions	
Inside	296(W) x 435(D) x 238(H) mm
Outside	420(W) x 601(D) x 336(H) mm, lid closed. 626 mm lid open.
Weight	Approx. 27 kg
*Packing	
Size	560(W) x 820(D) x 480(H) mm
Weight	Approx. 33 kg

* The size or weight of a package may vary depending on how the product is packed.

RF Specifications

*The shielding effectiveness is measured with blank panels mounted; other I/O interface panel may result in different shielding effectiveness.

Frequency Range	0.1 GHz to 12 GHz
*Shielding Effectiveness (Typ.)	
0.1 GHz to 3 GHz	> 70 dB
3 GHz to 6 GHz	> 60 dB
6 GHz to 12 GHz	> 60 dB

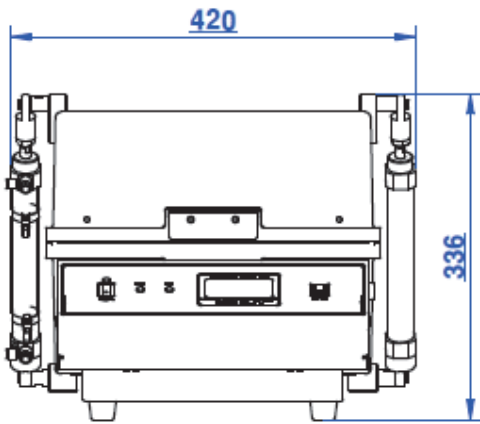
Absorber Reflectivity

Referring to a metal plate (0 dB @ 0.5 GHz to 12 GHz), signal reduction is measured with the RF absorber inserted.

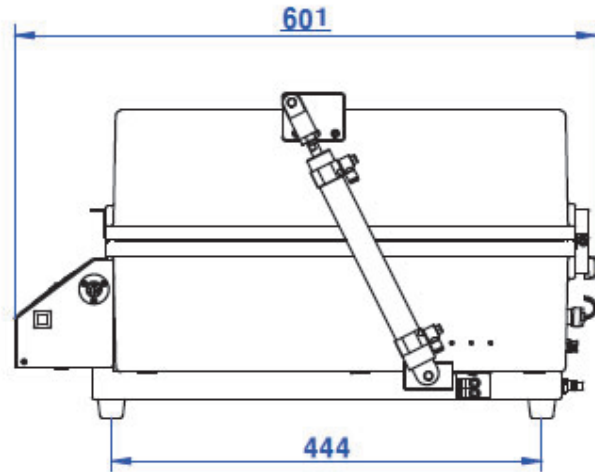
Frequency	Reflectivity (Typ.)
0.1GHz to 3GHz	3dB
3GHz to 6GHz	6dB
6GHz to 12GHz	10dB

Outer Dimensions

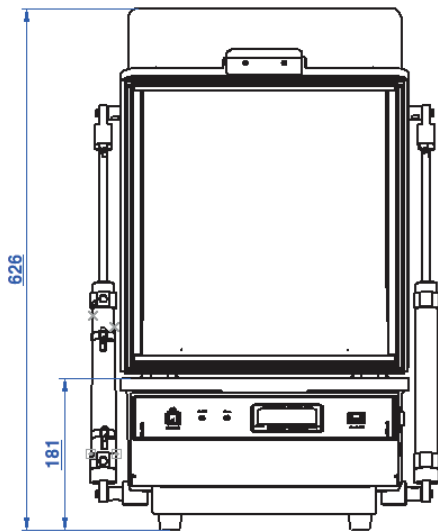
TC-5922BPU Outer Dimensions (WxDxH): 420(W) x 601(D) x 336(H) mm, lid closed. 626 mm lid open.



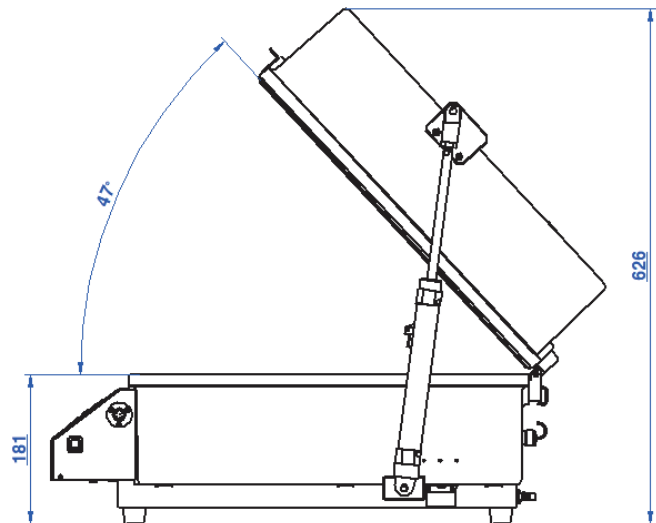
Front View (Closed)



Side View (Closed)



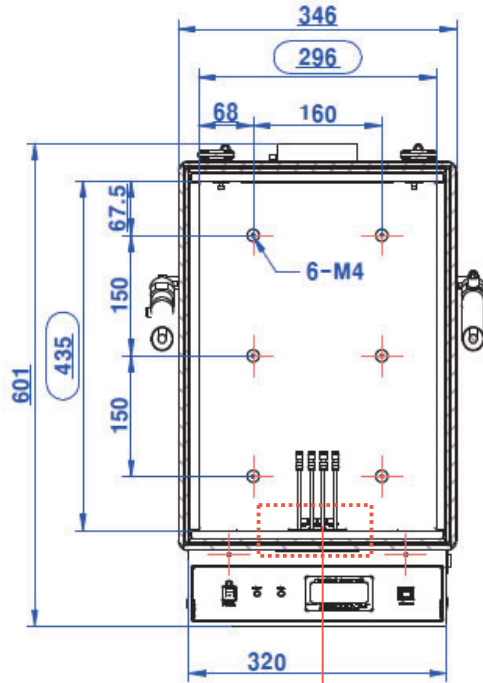
Front View (Opened)



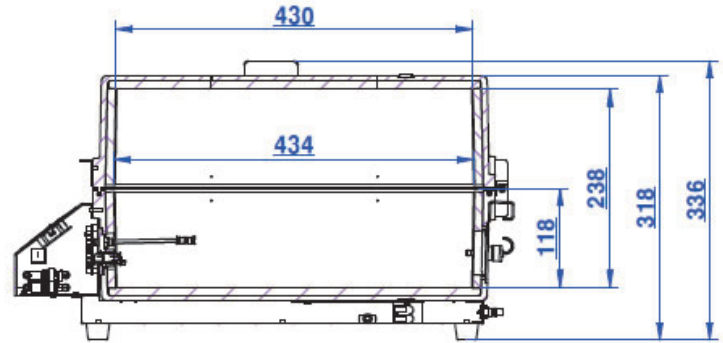
Side View (Opened)

Inner Dimensions

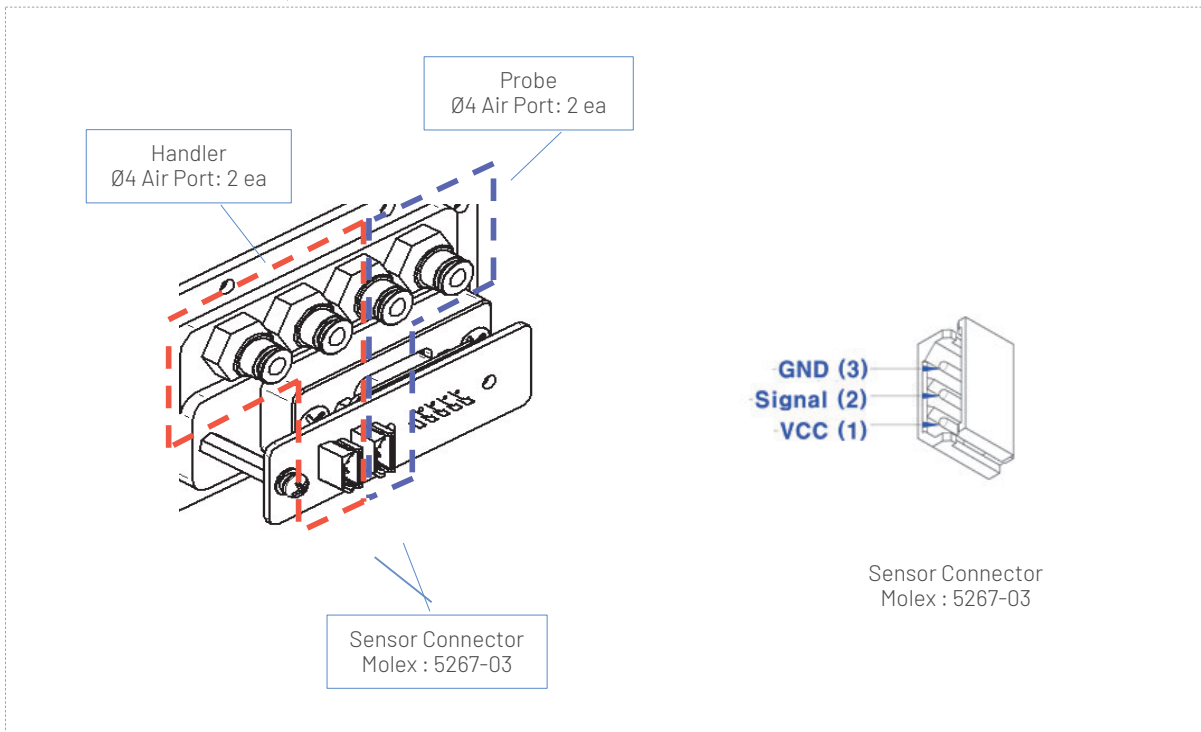
TC-5922BPU Inner Dimensions (WxDxH): 296(W) x 435(D) x 238(H) mm



Bottom Inner View



Side Inner View



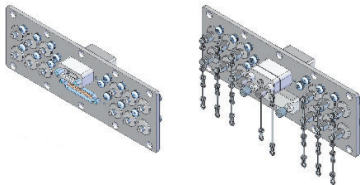
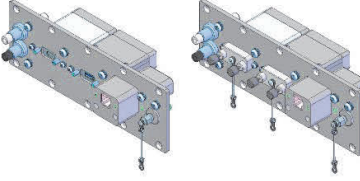
Ordering Information

Order Number	Product
TC-5922BPU	Pneumatic Shield Box

Standard Accessories

Product	Description
4011-0144	SS-402, N(m)ST to N(m) ST, 1 m, 1 pc
4003-0073	USB to RS-232C(male) Cable, 2 m, 1 pc
4601-0018A	Box Remote Switch Cable, 2 m, 1 pc
9703-0074	Air Coupler, 1 pc
C5922AP-2013	Top Cover Bracket, 1 pc
3001-0039	Switching Power Supply, 1 pc
4010-0002	Power Cable, 220 V
Test Report	

Pre-configured I/O Interface Panels

Product	Code	Configuration
	M06022A	twelve (12), SMA (f) outside and SMA (f) inside one (1), DB25(p) outside and DB25(s) inside, 1000 pF Pi filter one (1), USB 2.0 outside and inside
Data Interface Panel		
	M06025A	one (1), SMA (f) outside and SMA (f) inside one (1), USB 3.2 Gen1 Type-A outside and inside (USB3.0) one (1), USB 3.2 Gen2 Type-C outside and inside one (1), RJ-45 outside and inside one (1), Banana Jack type DC power adaptor
Data Interface Panel		

Custom IO panels are available by selecting from the available connectors on the following page. Please let our friendly sales team member.

Fixtures

We offer standard grid fixtures that can change the position of DUT holding blocks. An optimal fit for different shapes of DUT can be made within seconds. Also, fully customized fixtures can be manufactured and supplied if necessary to meet the customer's demands.

In addition to the fixture, various types of antenna coupler options can form an ideal measuring environment for characteristics of each DUT.

Product		Code	Configuration
		F59222A	Antenna Coupler movable type fixture Antenna Coupler (Optional): TC-93026A 280(W) x 390(D) x 52(H) mm
			

I/O Filters

I/O Filters	Code	Description	*Typical Shielding
	3409-0009-1 DB25, 1000pF pi Filter	3 Mbps / 100 VDC 5 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz
	3409-0014-1 DB25, 100pF pi Filter	10 Mbps / 100 VDC 5 Amps max	>50 dB from 0.5 to 2 GHz >60 dB from 2 to 3 GHz >60 dB from 3 to 6 GHz
	3409-0008-1 DB9, 1000pF pi Filter	3 Mbps / 100 VDC 5 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz
	3409-0010-1 DB9, 100pF pi Filter	10 Mbps / 100 VDC 5 Amps max	>50 dB from 0.5 to 2 GHz >60 dB from 2 to 3 GHz >60 dB from 3 to 6 GHz
	3409-0018A-3^(**) USB 2.0 Filter	480 Mbps / 5 V, 500 mA Max Current: 5 A	>60 dB from 0.5 to 2 GHz >70 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz >70 dB from 6 to 12 GHz
	3409-0042A-2^(**) USB 3.2 Gen 1, Type A Filter (Active)	5000 Mbps / 5 V, 600 mA Max Current: 1.5 A	>80 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >75 dB from 3 to 6 GHz >55 dB from 6 to 12 GHz

I/O Filters	Code	Description	*Typical Shielding
	3409-0046A USB 3.2 Gen 2, Type C Filter (Active)	10 Gbps / 4 - 22V Max Current: 5 A	>70 dB from 0.5 to 2 GHz >70 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz >70 dB from 6 to 12 GHz
	3904-0296A RJ-45 Filter	1 Gbit/s Copper-Line Ethernet (1000 BASE-T)	>60 dB from 0.5 to 2 GHz >70 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz >60 dB from 6 to 12 GHz
	3406-0004A DC Power Adaptor	50 VDC 3 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >80 dB from 3 to 6 GHz >70 dB from 6 to 12 GHz
	3406-0005A (Black) 3406-0006A (White) DC Power Adaptor (Banana Jack Type)	50 VDC 10 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >80 dB from 3 to 6 GHz >70 dB from 6 to 12 GHz
	3103-0009A AC Power Adaptor	250 VAC 7 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >80 dB from 3 to 6 GHz >70 dB from 6 to 12 GHz
	3408-0100 RF, N-SMA Connector	From DC to 12 GHz 50 Ω / 1.3 max	N/A
	3408-0101 RF, SMA-SMA Connector	From DC to 18 GHz 50 Ω / 1.3 max	N/A

*Typical Shielding is an estimated value with I/O interface applied.

** Exclusive cables should be used. (USB Cable, 4008-0079A, 2 M, USB 3.0 A(M) - USB 3.0 A(M), Housing: Aluminum)

The data above were measured by standards, and they may be different depending on the measuring method and environment.

Each shielding effectiveness is measured without any cable, so it will be likely affected when a cable is connected.

Also, it may vary depending on the type of cable.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE