



Concentric Technology Solutions Inc

Solutions for the Wireless Industry

TC-5972DPU

Pneumatic Shield Box

Data Sheet



Concentric Technology Solutions, Inc.

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Introduction

TC-5972DPU provides shielding effectiveness with a frequency range of 0.1 GHz to 12 GHz.

TC-5972DPU can be opened and closed pneumatically, the wide range of this box enables testing on traditional technologies like Wifi, Bluetooth, Zigbee, as well as on forward-looking wireless communication technologies like 5G, UWB, and Wi-Fi 6E.

TC-5972DPU can be remotely controlled through RS-232C and Ethernet, its measurement automation system can be built through PC program.

Features

- Reliable high RF shielding from 0.1 GHz to 12 GHz
- Pneumatic control of lid opening/closing and optional test fixture motions
- High performance absorber for radiation testing
- 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	Four(4), N(f) outside and SMA(f) inside
Line Voltage	24 VDC, Max. 2 A
Remote Control	Ethernet, RS-232C
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	445(W)x 401(D)x 338(H) mm, 209(D)mm top side.
Outside	577(W)x 661(D)x 473(H) mm, lid closed.
Weight	Approx. 32 kg
*Packing	
Size	850(W)x 720(D)x 590(H) mm
Weight	Approx. 42 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, 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

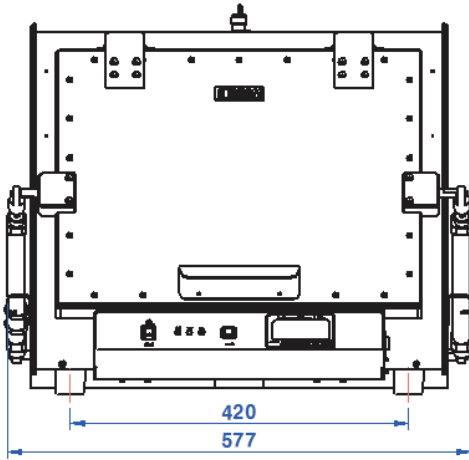
Absorber Reflectivity

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

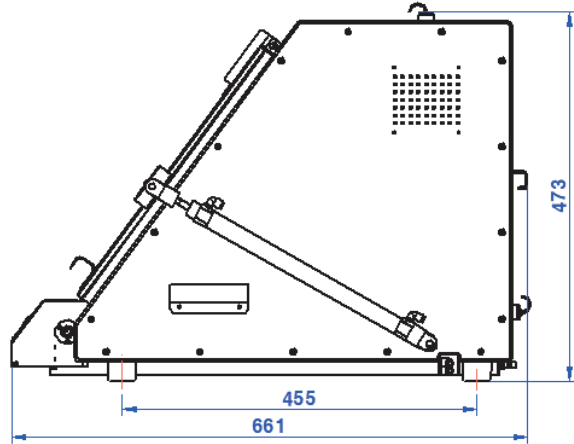
Frequency	Reflectivity (Typ.)
0.5 GHz to 2 GHz	10 dB
2 GHz to 12 GHz	20 dB

Outer Dimensions

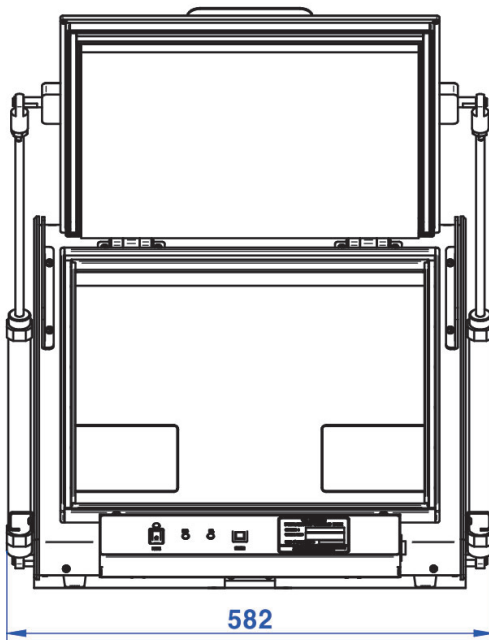
TC-5972DPU Outer Dimensions (WxDxH): 577(W) x 661(D) x 473(H) mm, lid closed. 416 mm lid open.



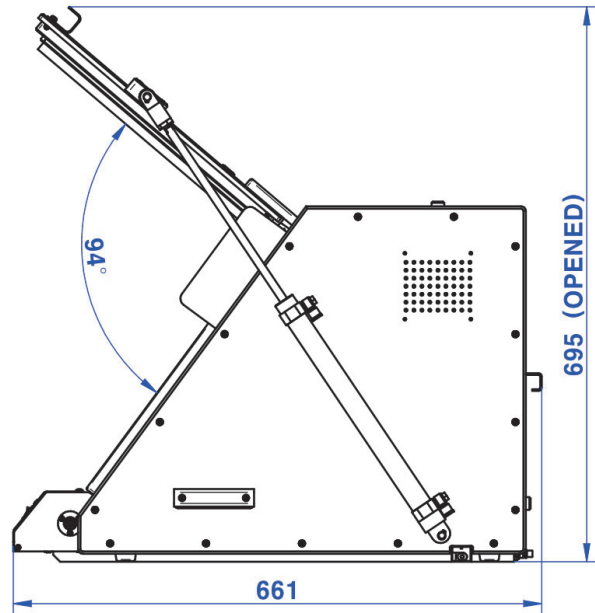
Front View (Closed)



Side View (Closed)



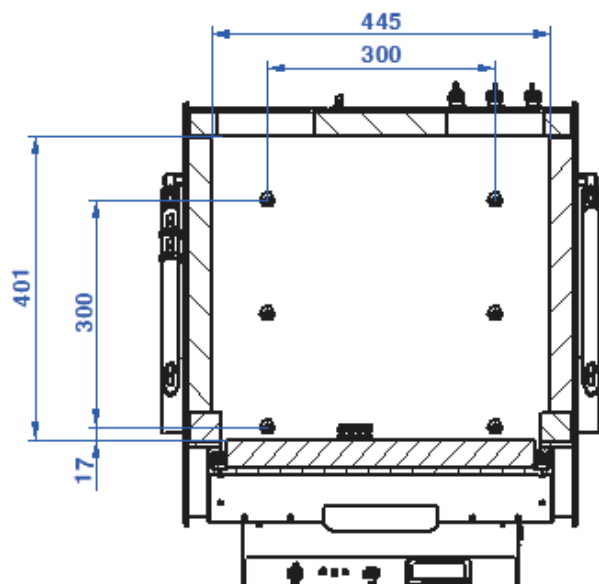
Front View (Opened)



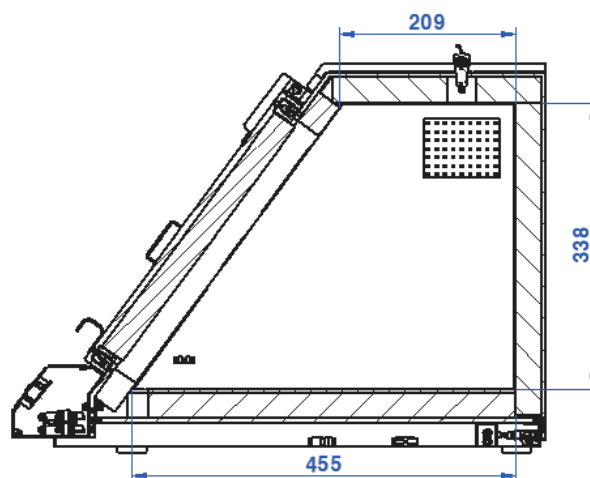
Side View (Opened)

Inner Dimensions

TC-5972DPU Inner Dimensions (WxDxH): 445(W) x 401(D) x 338(H) mm, 209(D) mm top side.



Bottom Inner View



Side Inner View

Ordering Information

Order Number	Product
TC-5972DPU	Pneumatic Shield Box

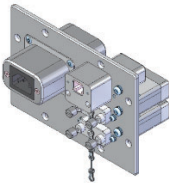

Standard Accessories

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
C5915AP-0010	Top Cover Bracket, 1 pc
3001-0039	Switching Power Supply, 1 pc
4010-0002	Power Cable, 220 V
Test Report	

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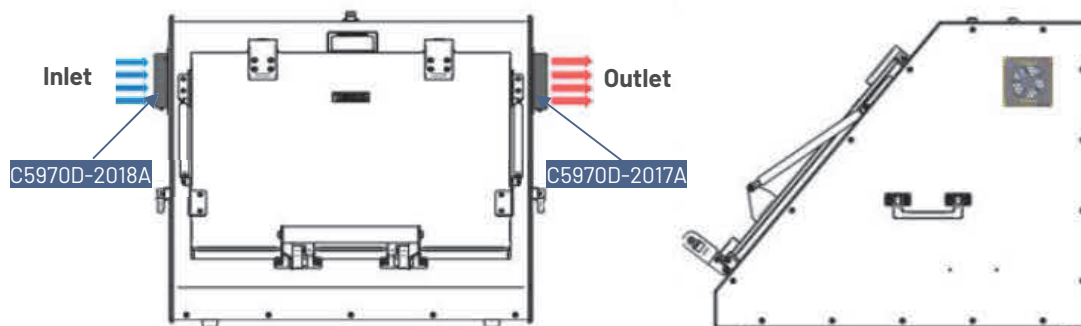
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Pre-configured I/O Interface Panels

Product	Code	Configuration
 <p>Data Interface Panel</p>	M07049B	four (4), DB9(p) outside and DB9(s) inside, 100 pF Pi filter one (1), RJ-45 outside and inside one (1), Banana Jack type DC power adaptor
 <p>Data Interface Panel</p>	M07100A	three (3), SMA(f) outside and SMA(f) inside two (2), USB 2.0 outside and inside one (1), AC power adaptor three (3), Banana Jack type DC power adaptor
 <p>Data Interface Panel</p>	M07016C	one (1), RJ-45 outside and inside one (1), AC power adaptor two (2), USB 3.2 Gen1 Type-A outside and inside
 <p>Cooling Fan Panel</p>	C5970D-2017A C5970D-2018A	one (1), DC Fan Set, DC 24 V (One Pair) <ul style="list-style-type: none"> • C5970D-2017A: Outlet • C5970D-2018A: Inlet • C5970D-2017A / C5970D-2018A are the same parts but the installation direction is different.

Customized I/O Interface Panel is available by selecting below I/O Filters and combine.
Please contact Tescom sales team or your local distributor.

Air Flow Mechanism of Shield Box








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
		F59724B	Top Fixture Antenna Coupler (Optional): TC-93061A
		F59725B	Bottom Grid Fixture Antenna Coupler fixed type fixture Antenna Coupler (Optional): TC-93026A
		F59727A	Side Fixture Antenna Coupler (Optional): TC-93061A

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 ^(M) 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

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I/O Filters	Code	Description	*Typical Shielding
	3409-0042A-2^(M) 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
	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 internal 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