Concentric Technology Solutions Inc

Solutions for the Wireless Industry

TC-5830APU

TESCOM WIRELESS

Pneumatic Shield Box

Data Sheet

Introduction

The TC-5830APU is our compact high-performance RF audio shield box offering testing solutions for both RF and sound system devices. TC-5830APU supports a range up to 12 GHz to enable testing on forward-looking technologies such as 5G, UWB, and WIFI 6E variants. TC-5830APU can be operated remotely via remote control, while additional features like the dual pressure control lid and sensor ensure enhanced user safety. The TC-5830APU comes pre-fitted with two RF connectors with other prebuilt and custom I/O options available upon inquiry.

Features

High durability and reliable RF-shielding

Effective radiation testing environment with RF-absorber

Vibration Dampening Implementation through the Design of the Dampers

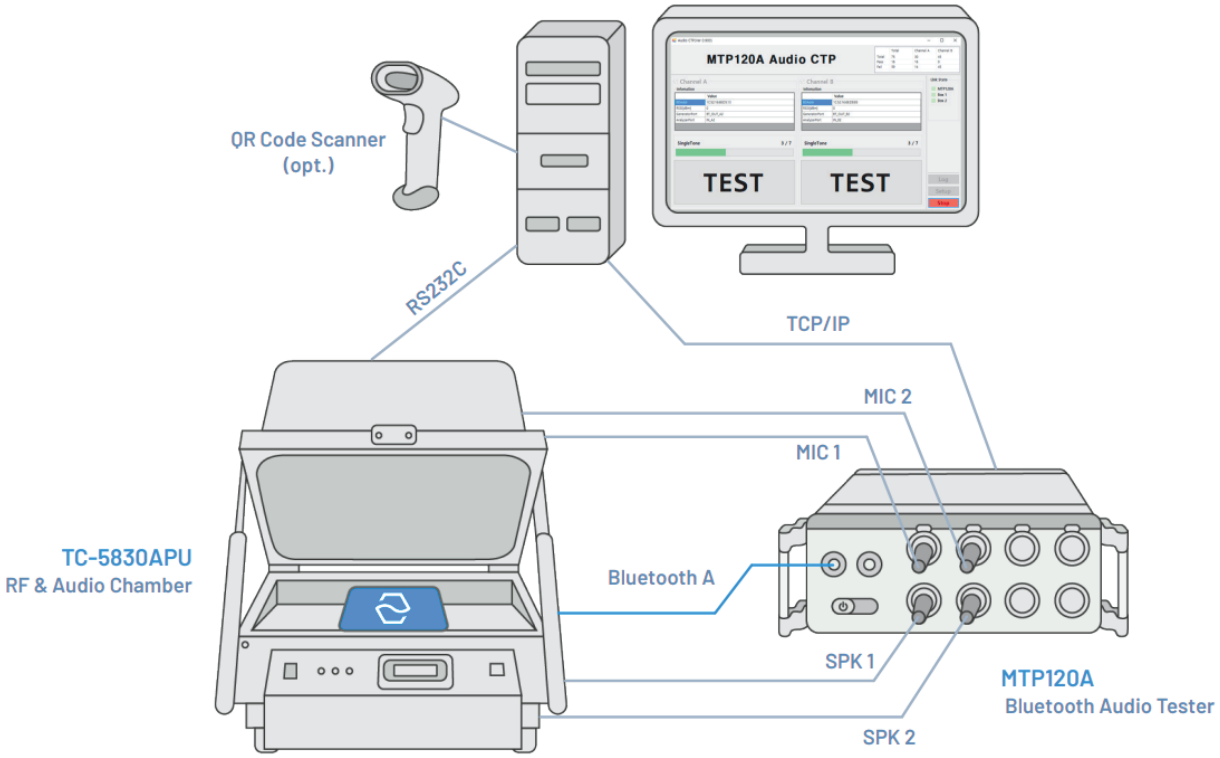
Pneumatic operation of lid and fixture movements

EMI filters on all data ports and power line

Customizable I/O connections

Red and green LED's for pass/fail indication

Remote control by RS-232C



Mechanical Specifications

Standard RF Connector	Two (2) N (f) outside and SMA (f) inside
Line Voltage	24 VDC, Max. 2 A
Remote Control	RS-232C, 3 wire, DB9 (s)
Air Connection	
Main Connection	6 mm OD hose, one-touch push-on fitting
Fixture Control Connection	4 mm OD hose, one-touch push-on fitting
Input Air Pressure	5 to 10 bar
Dimensions	
Inside	332 (W) x 312 (D) x 161 (H) mm
Outside	420 (W) x 432 (D) x 305 (H) mm: lid closed, 460 (H) mm: lid open
Weight	Approx. 15 kg
*Packing	
Size	480 (W) x 545 (D) x 410 (H) mm
Weight	Approx. 17 kg

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

RF Specifications

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

Frequency	Shielding effectiveness [dB]
0.5 GHz to 2 GHz	> 70 dB
2 GHz to 3 GHz	> 70 dB
3 GHz to 6 GHz	> 60 dB
6 GHz to 12 GHz	> 60 dB

RF Absorber Performance

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

Frequency	Reflectivity [dB]
0.5 GHz to 3 GHz	3 dB (Typ.)
3.5 GHz to 6 GHz	6 dB (Typ.)
6 GHz to 12 GHz	10 dB (Typ.)

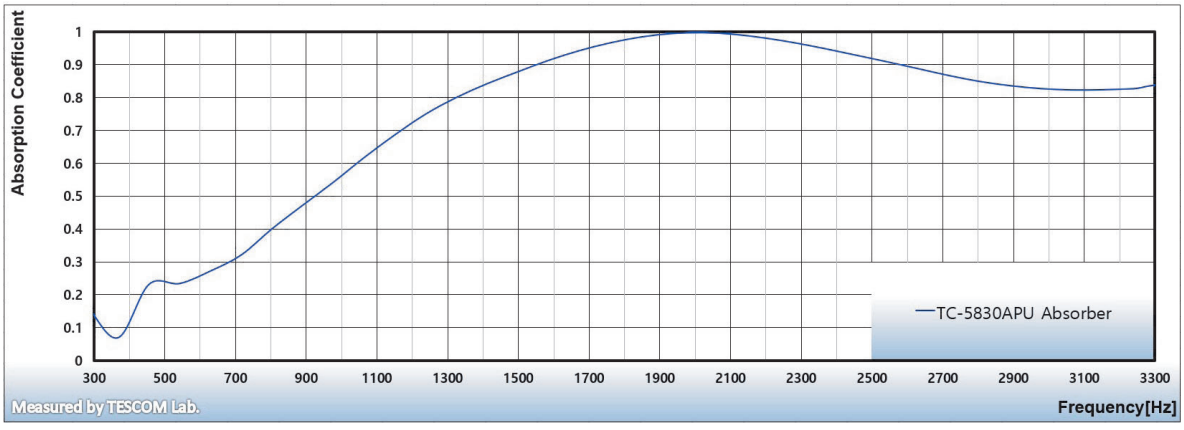
Audio Specifications

The sound isolation below is measured with blank panels. It is measured with an audio analyzer under the condition of 1 m distance between reference speaker and microphone.

Frequency	Sound Isolation [dB]
315 Hz to 800 Hz	> 15 dB
800 Hz to 2.5 kHz	> 20 dB
2.5 kHz to 10 kHz	> 30 dB

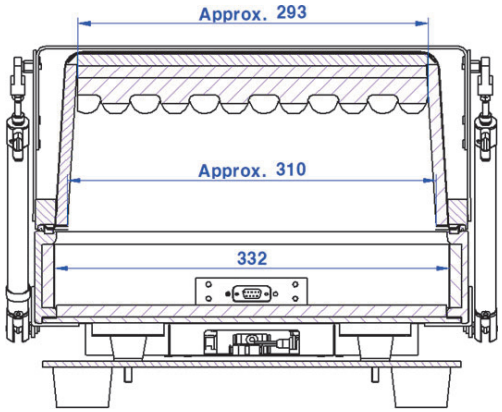
Audio Absorber Performance

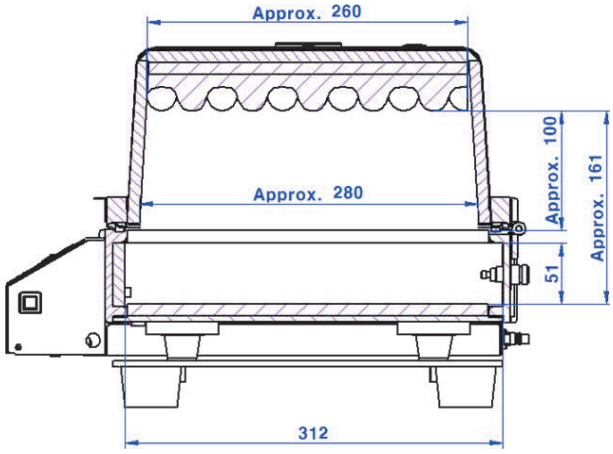
(ISO 10534-2: Impedance Tube Method)

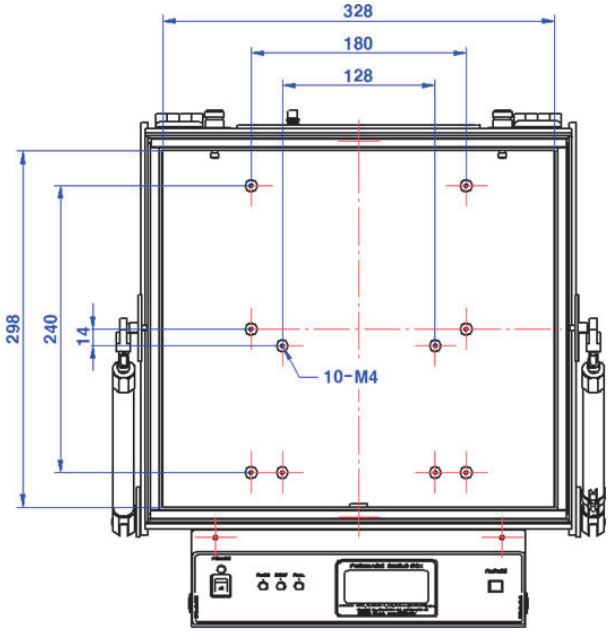


Inner Dimensions

TC-5830APU Inner Dimensions (WxDxH): 332(W) x 312(D) x 161(H) mm



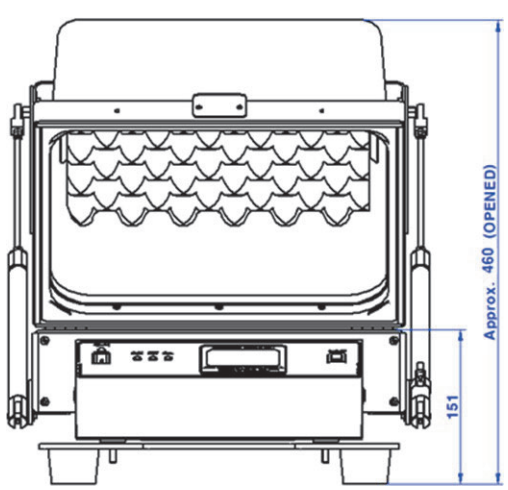


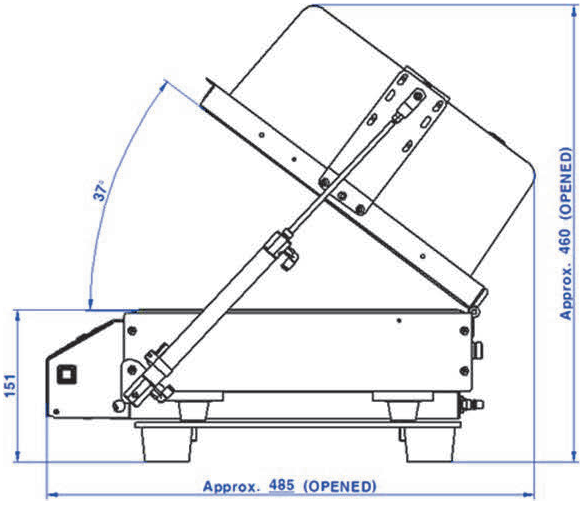


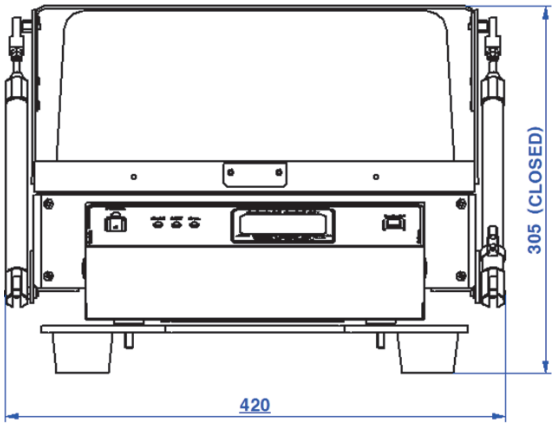
Outer Dimensions

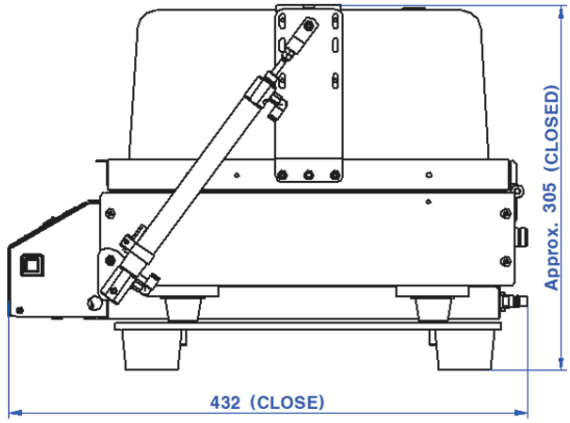
TC-5830APU Outer Dimensions (WxDxH):

420(W) x 432(D) x 305(H) mm, lid closed. 460 (H), lid opened.









Ordering Information

Order Number	Product
TC-5830APU	Pneumatic Shield Box

Standard Accessories

Product	Description
Switching Power Supply	
Power Cable	220V, 1.5m
RS-232 Cable	DB 9 (p) to DB9 (s), 2m
RF Cable	SS-402, N (m) to N (m) 1m
Air Coupler	
Bracket	
Test Report	

Optional Accessories

Product	Code	Configuration
	4410-1131	Canare L-2E5 Cable 30cm, DB9 connector
	4410-1161	Canare L-2E5 Cable 60cm, DB9 connector
	4410-2021A	RG174 Coax Cable 20cm, BNC connector
	4410-2031A	RG174 Coax Cable 30cm, DB9 connector
	4410-2061A	RG174 Coax Cable 60cm, DB9 connector

Pre-configured I/O Interface Panels

Product	Code	Configuration
 Data Interface Panel	M06026A	Two (2) XLR (p), Two (2) XLR (s) outside DB25 (s) inside, 1000 pF Pi filter Two (2) DC Power Jack outside and inside One (1) USB 2.0 outside and inside

Customized I/O Interface Panel is available by selecting below I/O Filters and combining.

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
	**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
	**3904-0022A** 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 18 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.