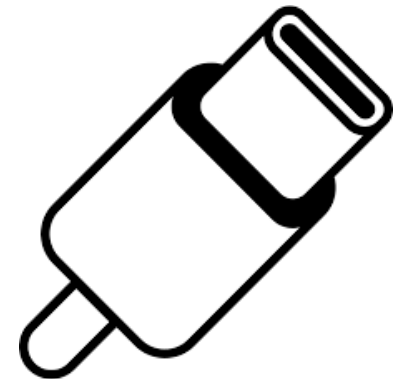




8761NAC USB Type-C Test Solution



USB Type-C Test Solution

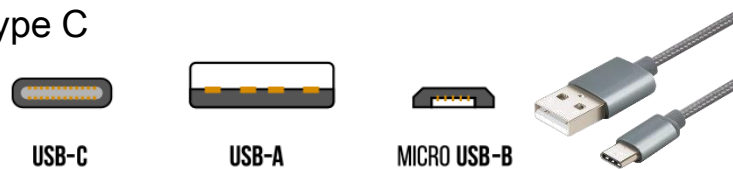
8761NAC USB Type-C Tester



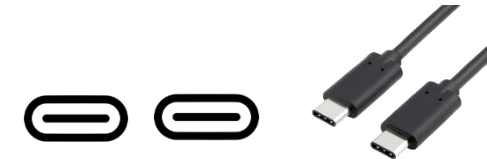
8761NAC USB Type-C Tester (Option FX-000C28)



Application : USB Type C



Application : Type-C VS Type-C



Test Items

4-wire Measurement Conductance Test

V

4-wire Measurement Conductance Test

V

Conductance/Open/Short

V

Conductance/Open/Short

V

AC/DC Hipot Test & Leakage Current Test

V

AC/DC Hipot Test & Leakage Current Test

V

DC insulation Test

V

DC insulation Test

V

Component test (RA Resistance/equivalent capacitance/Diode)

V

Component test (RA Resistance/equivalent capacitance/Diode)

V

Voltage Drop Test (5A)

V

Reading E-Marker's VDO Data

V

USB Type-C Test Solution

____About USB Type-C

Universal Serial Bus a.k.a. USB is the interface connect computer and outer device

USB Type-C can be insert by both side, and better power supply. Replace the VGA/DVI/HDMI video transmitting. USB Type-C give the consumer better experience for transmitting data, media sharing charging mobile device by using on USB cable. Compatible with DisplayPort, MHL and Thunderbolt 3, etc. USB-C will replace more transmitting interface in the future.



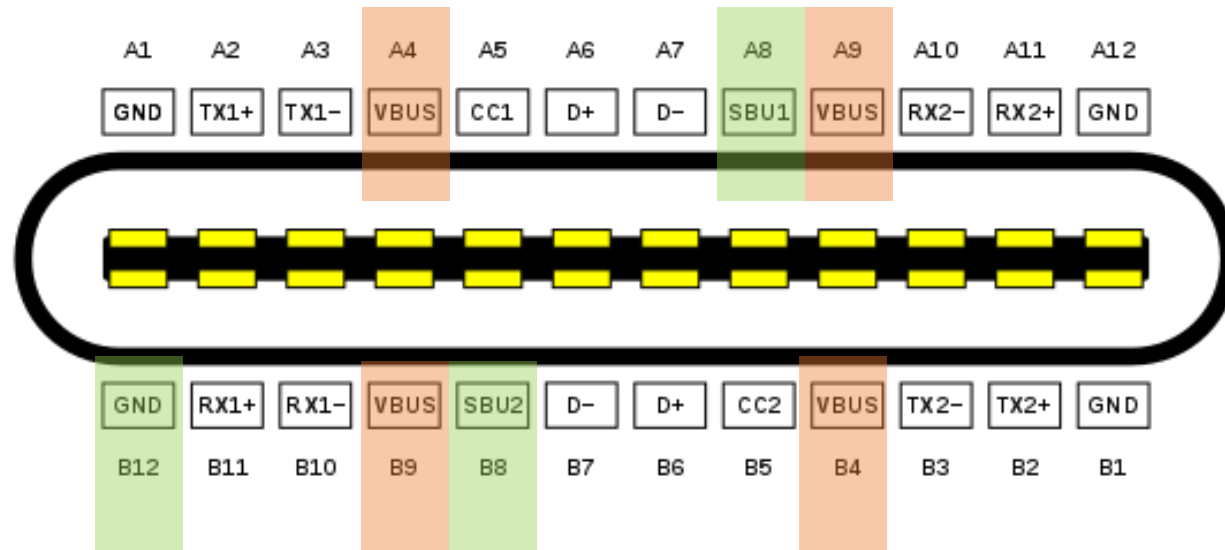
USB Type-C Test Solution

____About USB Type-C

USB Type-C needs to insert an E-Mark IC to control the operation.
The inspection for protection chip around E-Mark IC is important.



E-Mark IC is the critical part of Type-C interface. Manufacturer takes the quality of protection component around E-Mark IC really seriously.



- ◆ Isolation Diode
- ◆ RA Resistance
- ◆ Signal line to ground line filter capacitor
- ◆ Signal line to ground line filter capacitor
- ◆ Application for fast charge-High current voltage gap

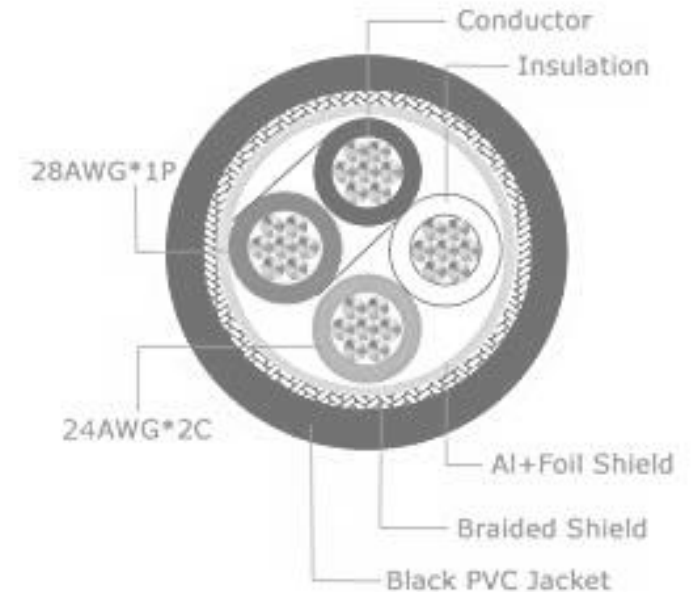
USB Type-C Test Solution

____About USB Type-C

Insulation defect will influence the transmitting efficiency.



- ◆ With the invisible damage, harness will not pass safety test. The high voltage will cause insulation defect.
- ◆ The deviation of contact and size of the cover of USB Type -C may cause short connection for male and female socket.
- ◆ The size of USB Type-C is 8.3x2.5mm. This usually cause short problem on soldering paddle card.



USB Type-C Test Solution

____MICROTEST 8761NAC Test Function

MICROTEST 8761NAC is a multifunctional portable tester. Not only detect the poor processing product, but also the O/S status between each contact and the protection component around E-Mark IC.



Open Failure

Short Failure

Cold Soldering Failure

Solder Empty

Crimp Terminal Damage

Harness Cause Insulation Failure

Detect Harness/ Connector's electronical feature to find out the unqualified product.





Automatically identify the normal or reverse plugin of wire or connectors

8761NAC Function >>> USB Type-C Test Solution

TEST	TestTime: 0.01Sec	1.OK 2.OK 3.OK 4.OK
TEST:1	PASS:1	FAIL:0
O/S TEST	PASS
Extract the Cable		PASS

O/S NET	File:1	LEARN
Net Pin#	Page: 1/3 { 32Nets } 64Pins}	
001 A01-A02		
002 A03-A04		
003 A05-A06		
004 A07-A08		
005 A09-A10		
006 A11-A12		
007 A13-A14		
008 A15-A16		
009 A17-A18		
010 A19-A20		
011 A21-A22		
012 A23-A24		
		O/S EDIT

Open Test & Short Test	
O/S Test	1kΩ-100kΩ
Intermittence O/S	1kΩ-100kΩ
Quick Intermittence open circuit	1kΩ-100kΩ

Open/Short Test

Make sure the contact of wire work properly.

Open: The wire should be contact, but it doesn't

Short: The wire shouldn't be contacted, but it does

Intermittence O/S

Make sure the cable has intermittent open/short defection

There is damage on part of cable, that cause instant contact or not.



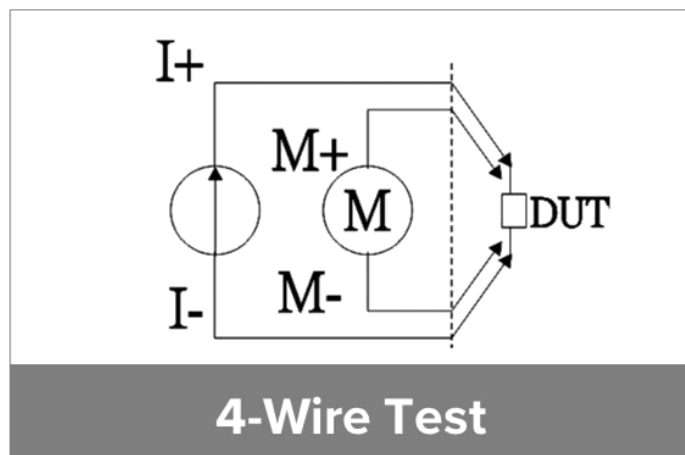
4-Wire Conductance Test 1mΩ-52Ω

8761NAC Function >>> USB Type-C Test Solution

COND .		File:2
[1] MAX. CONDUCTANCE	3.000Ω	COND NET
[2] MIN. CONDUCTANCE	0.000Ω	
[3] COND. OFFSET	+0.000	
[4] CONDUCTANCE MODE	SERIES	
[5] INTERMITTENCE LIMIT	50.0Ω	
[6] INTERMITTENCE TIME	1 Sec	
Zero Stat: NO		COND ZERO
		CLR. ZERO

NET CONSTEP: 1PAGE: 1/3						SET
Name	T	P+	P-	StdVal	Tol	CANC -EL
COND	T	A01	A02	1.000Ω	10.0	OK SET ALL CANC EALL
COND	T	A03	A04	1.000Ω	10.0	
COND	T	A05	A06	1.000Ω	10.0	
COND	T	A07	A08	1.000Ω	10.0	
COND	T	A09	A10	1.000Ω	10.0	
COND	T	A11	A12	1.000Ω	10.0	
COND	T	A13	A14	1.000Ω	10.0	
COND	T	A15	A16	1.000Ω	10.0	
COND	T	A17	A18	1.000Ω	10.0	
COND	T	A19	A20	1.000Ω	10.0	
COND	T	A21	A22	1.000Ω	10.0	
COND	T	A23	A24	1.000Ω	10.0	

4-Wire Conductance Test	
Conductance	1mΩ-52Ω
Intermittence Conductance	1mΩ-52Ω



Connect to DUT directly to prevent any deviation.
For measuring low resistance DUT, we recommend to choose 4-wire tester.



AC Hi Pot & DC Hi Pot / DC Insulation Resistance

8761NAC Function >>> USB Type-C Test Solution

HIPOT		
File: BURN-1		
Item	DC	Hipot
[1] Voltage	1000V	700V
[2] Frequency	Insu.	60Hz
[3] Time	0.10Sec	0.10Sec
[4] Spec.	1000.0MΩ	0.50mA
[5] Offset		0.00mA
[6] All-Ground	OFF	OFF
[7] Binary	ON	ON
[8] All nets	OFF	OFF
[9] GND pin	A01	A01
[10] Test rate	FAST	SUPER
[11] Max. pin	128	128

**NEXT
PAGE**

HI POT Test	
AC Hi pot Test	100V-700V
AC Leakage Current	0.01mA -5mA
AC Arcing Detection	0-9
DC Hi pot Test	50V-1000V
DC Leakage Current	0.1μA-1000μA
DC Arcing Detection	0-9
DC Insulation Resistance	1MΩ-1.2GΩ

Put a stabile high voltage on cable to make sure the quality of DUT

DC insulation

The result will judge by the rate of insulation resistance. Insulation resistance defect may cause DUT be penetrated or leakage current under high voltage.

Arc Test

Some high precision product for automobile and military can't accept any arc under high voltage.

- ◆ Inspect the loop contact in the connector fit the request of insulation and voltage.
- ◆ Insulation resistance between loop is lower than the standard.
- ◆ The voltage resistance is lower than the standard that cause leakage current.



RA Resistance / Filter Capacitor / Isolation Diode Test

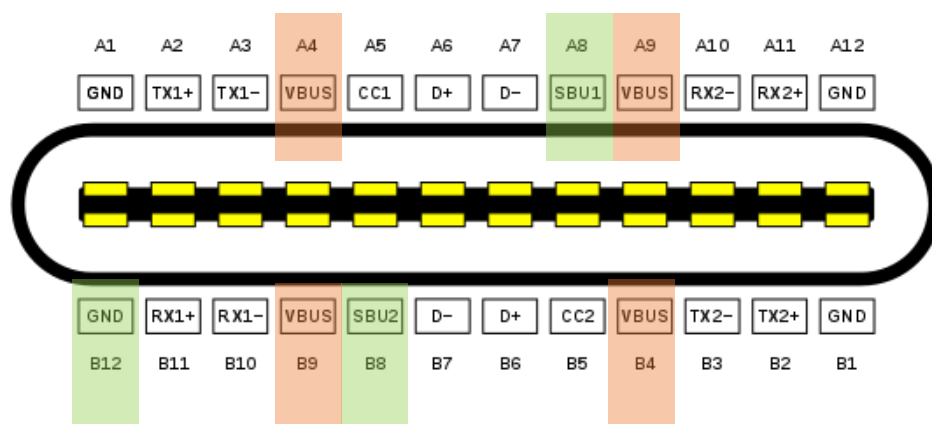
8761NAC Function >>> USB Type-C Test Solution

EDIT
STEP: 1PAGE: 1/1

Name	T	P+	P-	StdVal	Tol%
1	R	A01	B01	1.000K	10.0
2	C	A01	B01	1.000n	10.0
3	D	A01	B01	0.700V	10.0
4	V	A01	B01	1.000V	10.0
5	T	A01	B01	1.000R	10.0

MEAS STEP
MEAS ALL

SAME
OFFS
CLR. OFFS



4-Wire Conductance Test

Resistance	50mΩ-20MΩ
Capacitance	10pF-12μF
Diode	0-6.8V

E-Mark IC is the critical part of Type-C interface.

Manufacturer takes the quality of protection component around E-Mark IC really seriously.

- ◆ Isolation Diode Test
- ◆ RA Resistance Test
- ◆ Signal line to ground line filter capacitor Test
- ◆ Signal line to ground line filter capacitor Test

Option The 2-in-1 Current Expand Box FX-000C28 (5A)

8761NAC Function >>> USB Type-C Test Solution



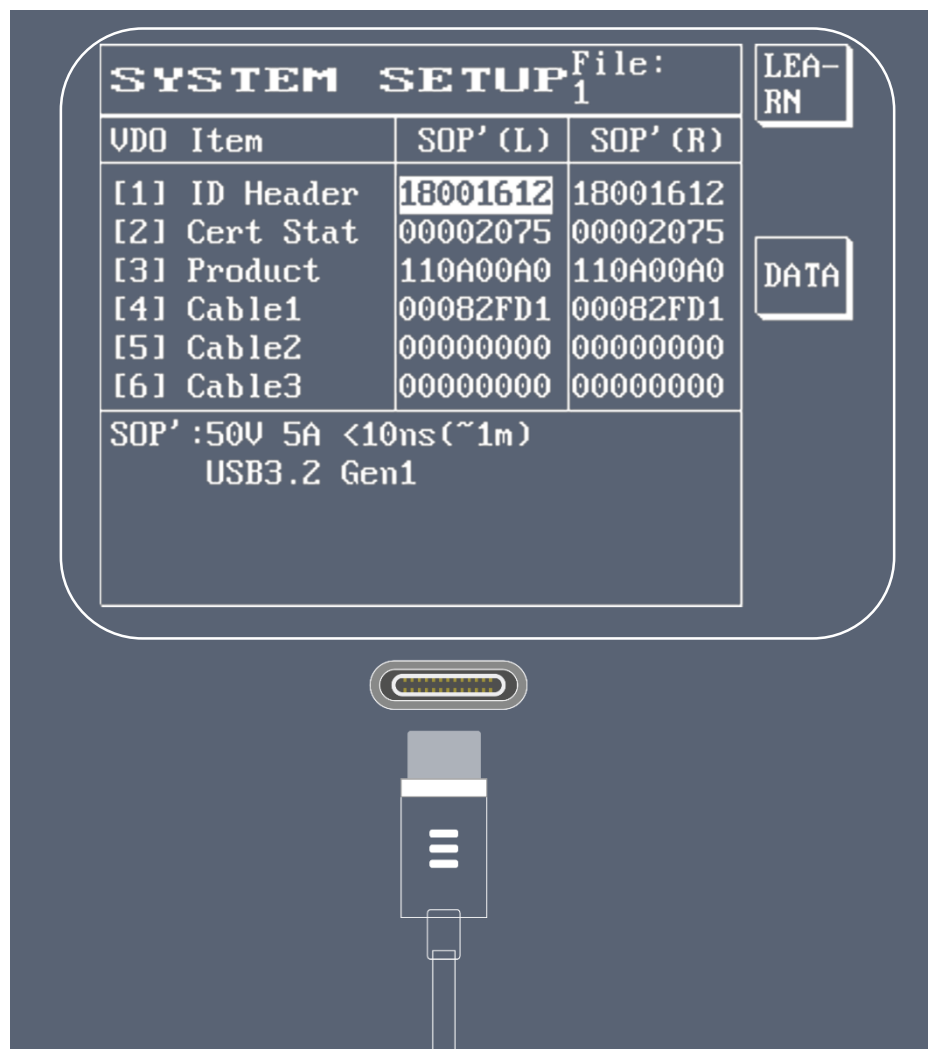
- ◆ Voltage Drop Test (5A)
- ◆ E-Marker's VDO Data





E-Marker's VDO Data Test (Option FX-000C28)

8761NAC Function >>> USB Type-C Test Solution



Function

Reading E-Marker's VDO Data using the FX-000C28

Application

USB Type C To USB Type-C





Voltage Drop Test (Option FX-000C28)

8761NAC Function >>> USB Type-C Test Solution

EDIT
STEP: 1PAGE: 1/1

Name	T	P+	P-	StdVal	Tol%
1	U	A01	B01	1.000U	10.0

SET PARAMETER
TEST MODE: **RESISTANCE**
CURRENT: 0.1A
FIX.Num: 1

MEAS STEP
MEAS ALL
SET PARA
SAME
OFFS
CLR. OFFS

Voltage Drop Test (5A)

Measure voltage difference and inner resistance.

Voltage difference and Resistance is the important figures for the quality.

Qualcomm has combine QC 4.0 and latest PD spec.. High Current low voltage is the trend in the future.

Voltage difference, smaller is better

The resistance might cause voltage difference problem because of the high current transmitting. Charger might be damaged if the voltage difference is too high.

Inner Resistance, smaller is better

The material of cable will affect the efficiency of charging. The inner resistance will increase under high current. With our expansion box, you might able to detect voltage difference and inner resistance.



MICROTEST



MICROTEST