

# **Docking station for vehicle external diagnostic equipment**

2021/9/8	0.2	Output specification added	K.Sakai
2021/9/7	0.1	first edition	K.Sakai
Date	Version	history	Make

# ■ What is a docking station for vehicle external diagnostic equipment?

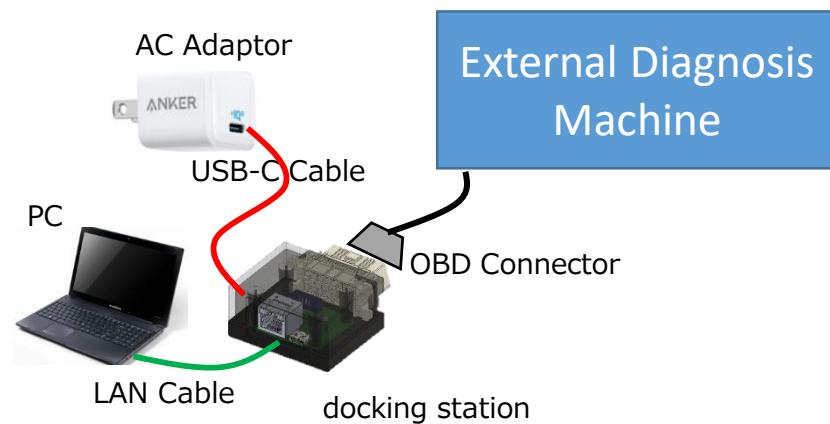
## 【 Objective 】

- ① Extract 12V from USB PD Charger Supply power to external diagnostic equipment
  - ② Converting the Ethernet pin of the OBD connector to an RJ-45 connector
- Convert the Ethernet pin of the OBD connector to an RJ45 connector and use a LAN cable to connect the external diagnostic equipment to the PC.

## 【 supplement 】

A vehicle external diagnostic device is a device that uses external tools to diagnose the health of a vehicle. external tools to diagnose the health of the vehicle.

# ■ How to use



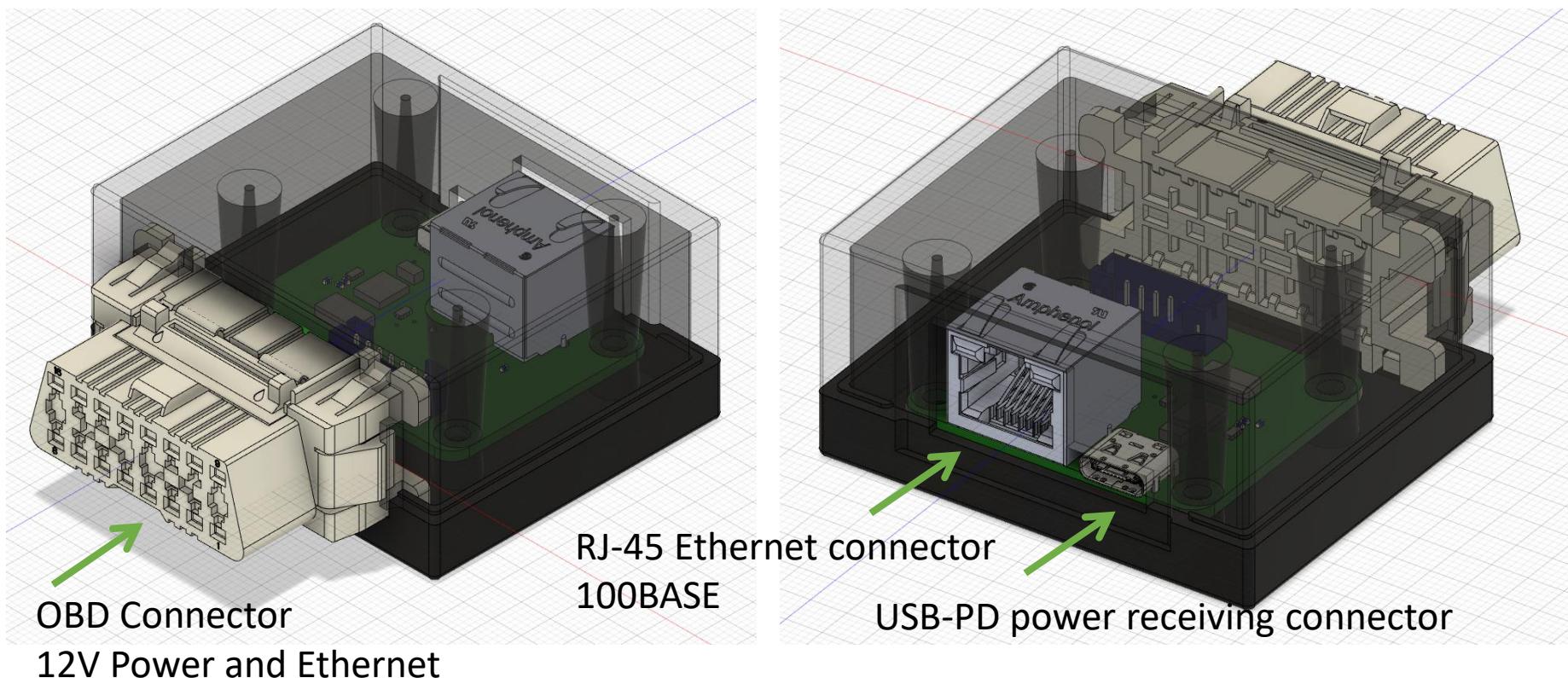
# ■ Specifications

Test Standers	Standard	Operation range		
		MIN	TYP	MAX
USB Type-C input	USB PD3.0 DC12V/2.5A DC15V/2A	-	-	-
LAN connector standard	RJ-45	-	-	-
OBD Connector Standard	SAE J1962	-	-	-
OBD+B Output Voltage		11.5V	12V	12.5V
OBD+B Output Current		-	1.2A	2A
Operating atmosphere range		0°C	25°C	45°C
Storage temperature range		-25°C	25°C	60°C
Operating humidity range		10%Rh	-	90%Rh

## ■ Appearance

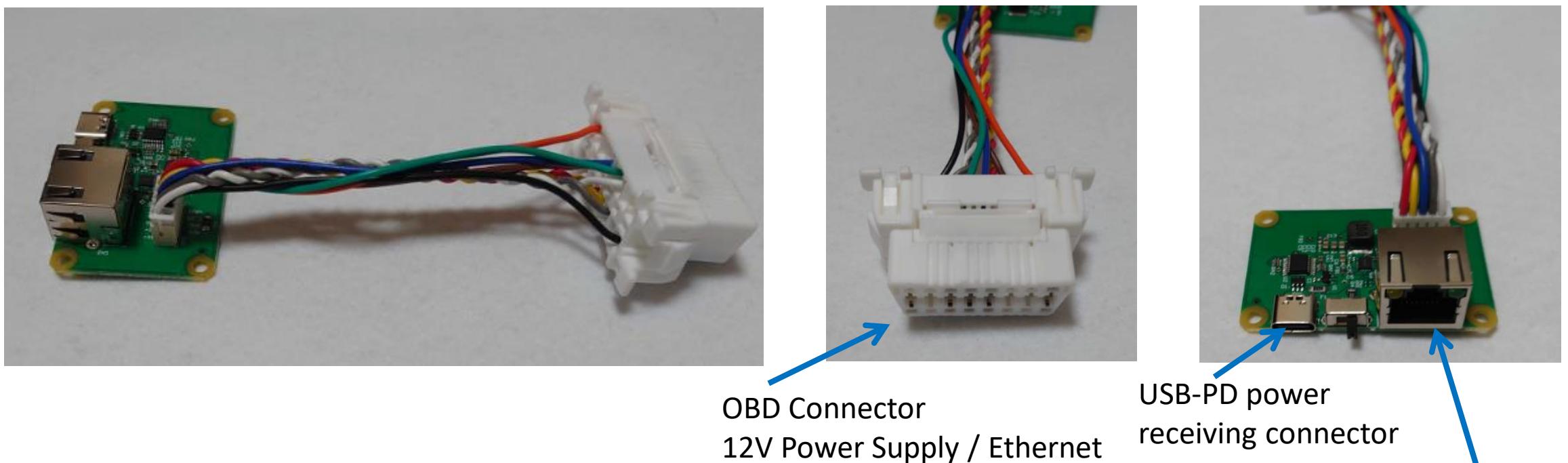
※ Case discontinued due to specification change  
⇒ Protected by shrink tube

External dimensions (not including protruding part of OBD connector): W60 x H30 x D50  
OBD connector: POM (white)



## ■ actual photo

### ① No protective shrink tubing

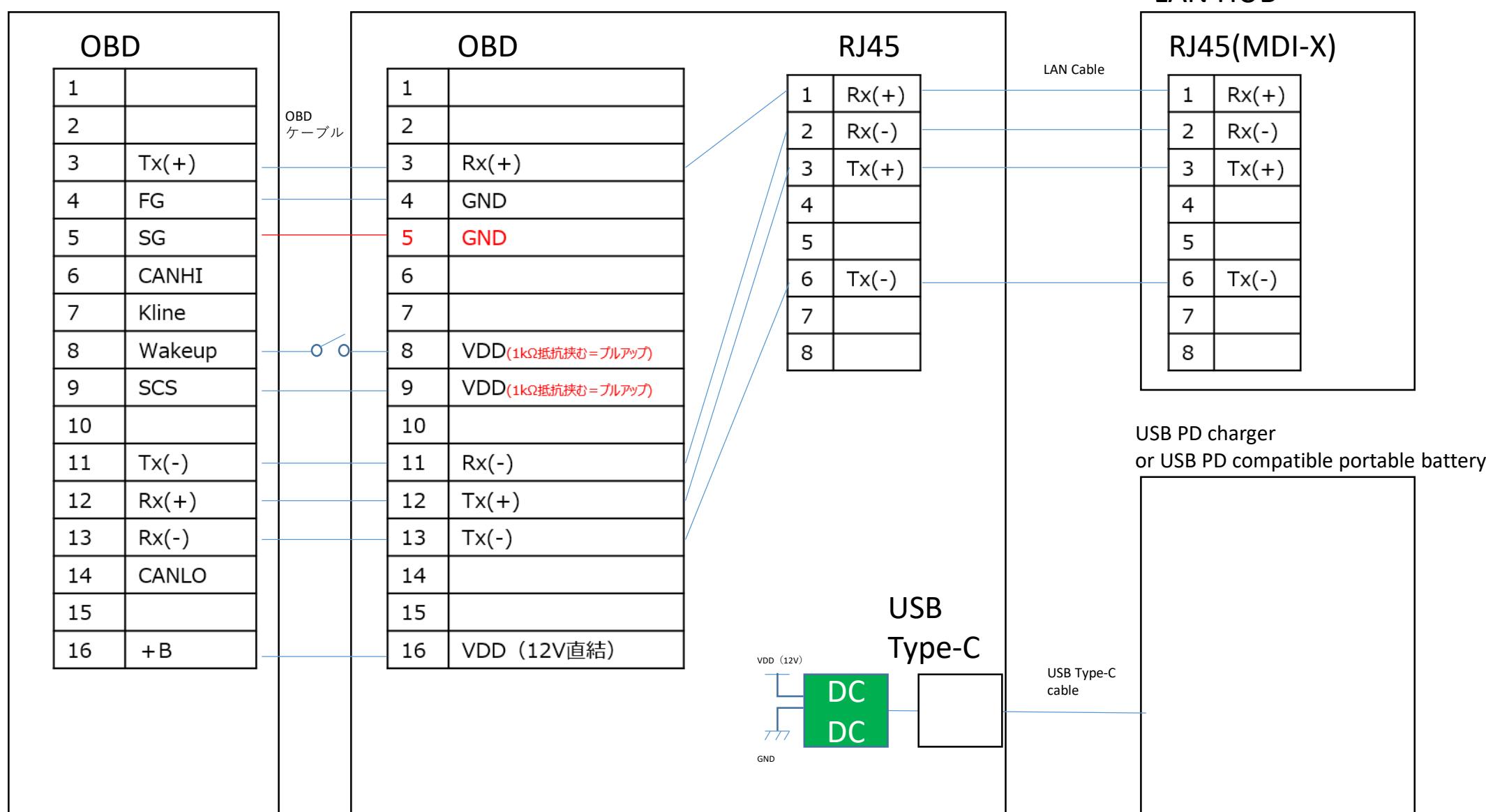


### ② Protective shrink tubing available

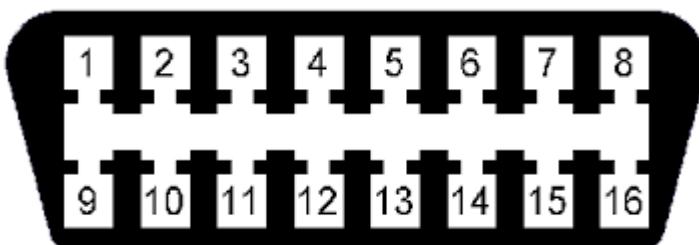


# ■ Wiring diagram for use

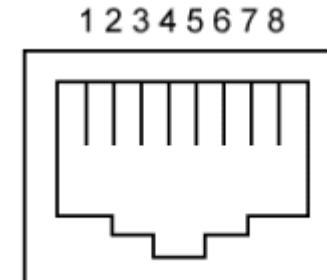
External Diagnosis Machine   Docking station



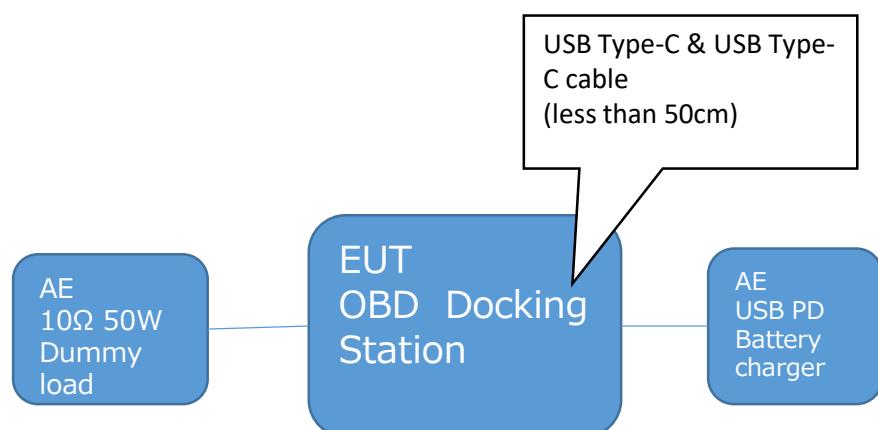
OBD Connector Pinout



RJ45 connector pinout



## ■ Configuration under test



## ■ Test

Test Standards	Standard
FCC Subpart 15	47 CFR 15 Subpart B <sup>※1</sup>
EN55032	Class A Internal frequency 108MHz or less
EN55035	IEC 61000-4-2 IEC 61000-4-3 IEC61000-4-6 All Performance Standard C

1 This product falls under the category of digital devices used only as electronic control systems and power systems in industrial plants, and is exempt from the requirements. However, conformity tests will be conducted to confirm safety.

### CAUTION!!

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Note:

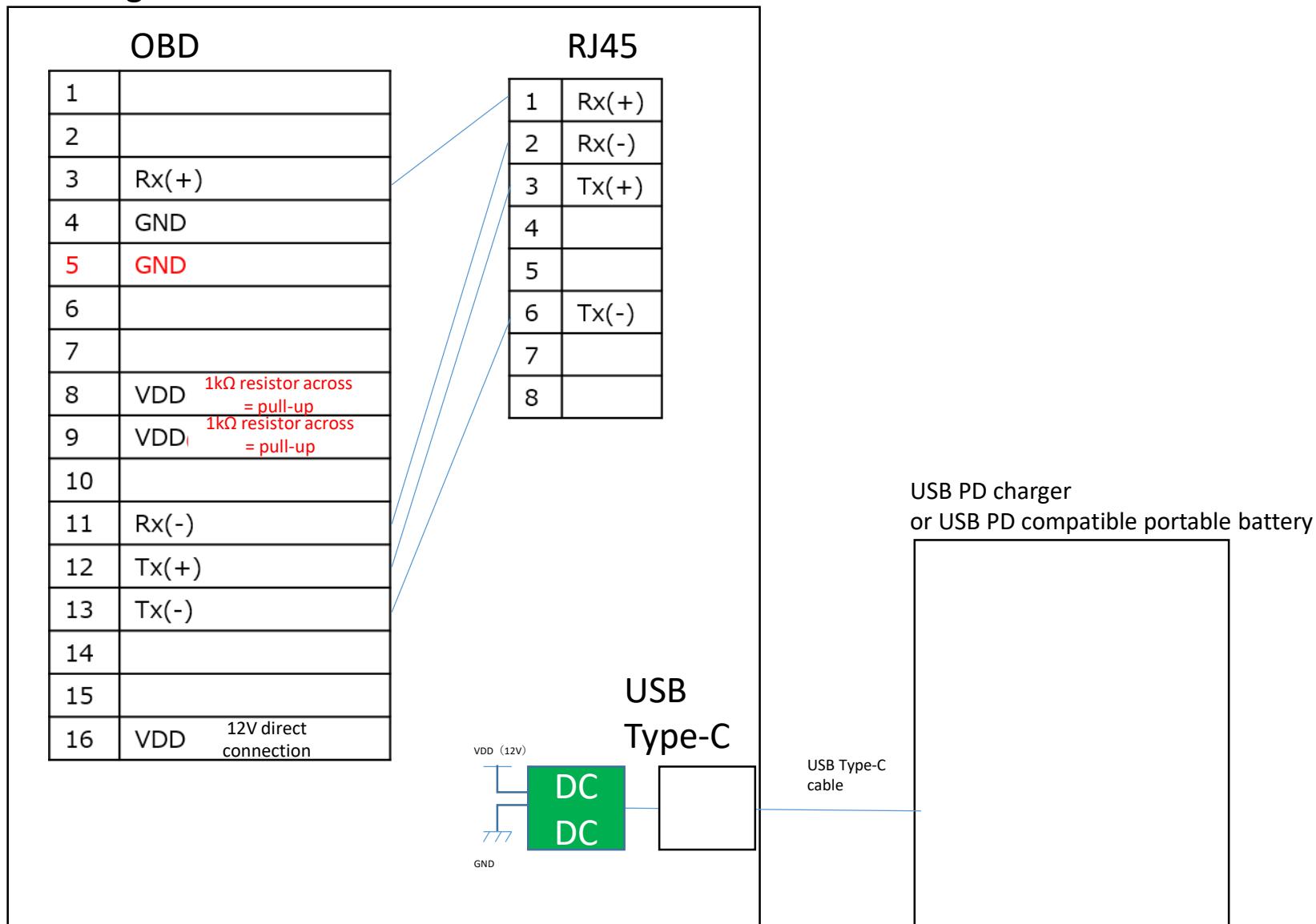
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

# ■ Passing Criteria

## Operation check after the test

docking station



Test Standards	How to check	eligibility criteria
Ethernet cabling	Measure the resistance of pin 3 of the OBD connector terminal and pin 1 of the RJ45 terminal.	No more than $\pm 5\%$ change in resistance value after the test compared to before the test
	Measure the resistance of the 11-pin OBD connector terminal and the 2-pin RJ45 terminal	No more than $\pm 5\%$ change in resistance value after the test compared to before the test
	Measure the resistance of the 12-pin OBD connector terminal and the 3-pin RJ45 terminal	No more than $\pm 5\%$ change in resistance value after the test compared to before the test
	Measure the resistance of the 13-pin OBD connector terminal and the 6-pin RJ45 terminal	No more than $\pm 5\%$ change in resistance value after the test compared to before the test
OBD電圧出力	USB Type-CにUSB PD対応充電器を接続し OBDコネクタ端子 4pin と 16pin の電圧計測	No more than $\pm 5\%$ change in voltage after the test compared to before the test (Standard 12V)