

User Guide

USB Dongle 4G

Please completely read this document and the contained safety instructions and note all given information before usage.

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This user guide is intended to improve the operator's efficiency throughout the procedure and does not entirely absolve them of responsibility.

Change Record

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Table of Contents

1. About this Document.....	8
1.1 Information on the User Guide.....	8
1.2 Limitations of Liability.....	8
2. Safety.....	9
2.1 Safety Graphical Pictogram or Symbol	9
2.2 Safety Instruction and Warnings	10
2.3 The Responsibility of Operator	10
2.4 Person in Charge of Operations	10
3. Packaging, Transport and Storage.....	12
3.1 Inspection Packaging and Transport.....	12
3.2 Transport.....	12
3.3 Storage.....	12
4. Intended Use	13
4.1 Limitation	13
4.2 Alteration and Restoration of the Product/System.....	13
5. Structure and Function.....	14
5.1 Overview	14
5.1.1 Feature	14
5.1.2 Application.....	15
5.2 Function.....	15
5.2.1 Technical Specification	15
5.2.2 Block Diagram	15
6. Network Connection Verification.....	16
7. Portal	19
8. Appendix	20
8.1 Abbreviations and Glossary.....	20

List of Figures

Figure 1 Safety Instruction	9
Figure 2 USB Dongle 4G	14
Figure 3 USB Dongle 4G Connected with HMI.....	16
Figure 4 Connect the Dongle to the USB_0	16
Figure 5 Internet Network.....	17
Figure 6 Open the Browser.	17
Figure 7 Enter www.google.com	18
Figure 8 The Google page is successfully loaded using the USB Dongle 4G.	18

List of Tables

Table 1 Safety Graphical Pictogram or Symbol	9
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1. About this Document

1.1 Information on the User Guide

This user guide contains basic information to be considered in the utilisation of the product. A precondition for safe working is the observance of all stated safety instructions and directions. Therefore, this user guide should be read and applied without fail by any person assigned to the installation and operating procedures of the product or system.

This user guide is part of the product, and the case may have to be passed to third parties or the following owners. It must be permanently kept at the usage site and be available for the operating personnel who are responsible for the installation of this product or system.

We are eager to ensure the comprehensiveness, relevance, and up-to-dateness of this user guide. It may become essential to make spontaneous changes to the product and its operation, which may not align with this manual, to maintain our technical advancement. In that case, Bacancy Systems PVT LTD. will provide you with a new manual. We exclude liability for disturbances, failures, and resulting damages.

The illustrations in this user guide will provide a better understanding. It can occur that illustrations are not drawn to scale or deviate somewhat from the original.

1.2 Limitations of Liability

All statements and remarks in this user guide have been aggregated with consideration of current standards, laws, and regulations, the state of technology, as well as our extensive knowledge, long-time expertise, and experience. In special models, due to demands for additional order options or the latest technical alterations, the actual scope of delivery can differ from the explanations and elaborations described here.

The manufacturer excludes any liability for damages caused by:

- Inappropriate assembling and installation.
- Non-observance of the user manual.
- Non-intended and improper use.
- Use beyond operation limits.
- Deployment of insufficiently qualified and trained personnel.
- Use of unauthorised spare parts and accessories.

2. Safety

The safety directions, cautions, warnings, and notices are stated here. Moreover, in this user guide's section, the following sections have to be followed to reduce potential health risks and prevent hazardous situations as per the ISO 45001:2018 standard for occupational health and safety.

2.1 Safety Graphical Pictogram or Symbol

These prescribe safety signs for the purposes of accident prevention, fire protection, health hazard information, and emergency evacuation as per the ISO 7010:2019 standard for graphical symbols, safety colours, and registered safety signs.

The safety instructions are structured as follows:

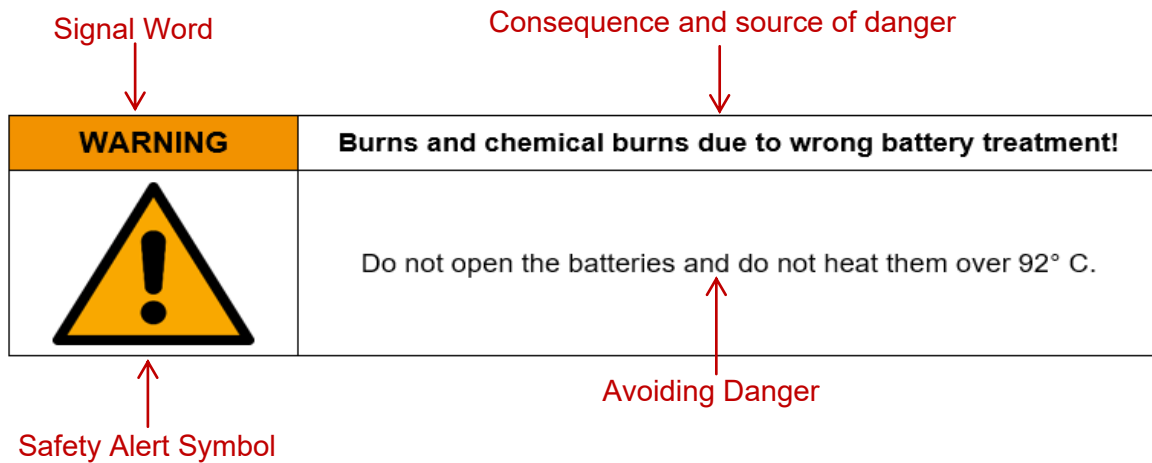











Figure 1 Safety Instruction

Table 1 Safety Graphical Pictogram or Symbol

Pictogram / Symbol	Signal Word	Meaning
	DANGER!	In case of non-compliance with this safety instruction, death or serious injury will occur.
	WARNING!	In case of non-compliance with this safety instruction, death or serious injury can occur.
	CAUTION!	In case of non-compliance with this safety instruction, a minor or moderate injury can occur.
	NOTICE!	In case of non-compliance with this safety instruction, material damage can occur.
	NOTE!	Useful notice or tip on the products or system's easy operation.


2.2 Safety Instruction and Warnings

MANDATORY	Read User Guide
	To get an understanding of the product, the user should pay careful attention to the user guide.
PROHIBITION	Assembly and Disassembly
	The assembly or disassembly of an open, repaired, default parameter, or changed production should be prohibited. The warranty could be void and invalid, and the service can be discontinued without notice. The use of a high-pressure washer to clean the product is prohibited.
MANDATORY	Disconnect Power Supply
 	The power source or plug should be disconnected in the event of an unanticipated event or when conducting maintenance and repair.
FIRE PROTECTION	Fire Extinguisher
 	In the event of a fire, the use of a dry powder fire extinguisher should be advised for fire control, and the use of water should be prohibited.

2.3 The Responsibility of Operator

The product is associated with industrial safety standards. However, the operator who is installing or operating the product is liable for the legal responsibilities for operational safety. In addition to the operational safety instructions in this manual, the safety, accident prevention, and environmental protection regulations valid for the operational area of the product shall be followed.

2.4 Person in Charge of Operations

WARNING!	Risk of injury caused by lack of an adequate qualification!
	Inappropriate handling of the product can lead to severe personal injuries and material damages.

In this manual the following qualification are specified:

Instructed Person	An instructed person is someone who has been instructed by the operator or manufacturer on the given tasks and potential hazards in the event of incorrect behaviour, as well as being semi-skilled and knowledgeable about the necessary safety procedures and safeguards.
Qualified Specialised Professional	Qualified specialised professionals are individuals who are knowledgeable with the assembly, commissioning, and operation of the product and process qualifications related to their work. The specialised individual is able to recognise hazards and prevent potential hazards because of their professional training, knowledge, and experience, as well as their understanding of the appropriate regulations.

3. Packaging, Transport and Storage

3.1 Inspection Packaging and Transport

The products have been properly secured to ensure sufficient safeguarding during shipment. Please scrutinise the delivered products for overall quality and transportation problems as soon as possible.

In the instance of external shipment damage, proceed as follows:

- Do not accept delivery or accept it only on reserve.
- Issue a complaint.
- Do not use items that are obviously defective.

3.2 Transport

Always ensure that your equipment is transported in safe and appropriate containers while transporting it to the usage location or in the field.

Never transfer everything in an unplanned way in the vehicle. Hits and thrusts might seriously impair the product's functionality.

Always use the original packaging, transport containers, transport boxes, or equivalent packaging, whether transporting by train, aircraft, or ship. The container shields the goods from impacts and vibrations.

3.3 Storage

Strictly store the product in well-ventilated, dry spaces. During storage, keep it dry and leverage the original packaging if possible.

Avoid extreme heat fluctuations during storage. The initiation of water condensation can impair the product's operation.

When storing, keep in mind the temperature restrictions of the product. Please refer to the product's technical data for valid storage temperatures.

4. Intended Use

The purpose of this user guide is to give you basic information about the USB Dongle 4G. This user guide is mainly focused on the technical aspects of the USB Dongle 4G, which are covered in this user guide in graphical and tabular formats in various sections, as listed below:


Sections 1–3 featured information concerning the document and product's liability, safety, packing, transportation, and storage constraints. These first three parts will help you know how to follow preconception practices that must be followed before, during, and after utilising the product.

Section five contains technical information about the USB Dongle 4G, such as its features, functions, and applications, as well as technical specifications and a block diagram.

Section six includes network connection verification information regarding the usage of the USB dongle 4G, such as connection and network availability with test procedures.

Section seven provides information about the portal access.

Finally, the appendix section included an abbreviation and glossary as well as the company's help desk and contact information.

WARNING!	Risk caused by inappropriate use!
	<p>Any unconventional use and/or different operation of the product can lead to hazardous situations.</p> <ul style="list-style-type: none"> Only use the product in a conventional manner.

4.1 Limitation

The product is intended for use in an operational environment. It should not be used in hostile or explosive conditions.

The operator should consult local safety authorities and safety representatives before performing tasks in hazardous areas or in similar circumstances.

4.2 Alteration and Restoration of the Product/System

To prevent risks and make sure optimal performance, no alterations, attachments, or restoration of the product are permitted without explicit authorisation of Bacancy Systems PVT LTD.

5. Structure and Function

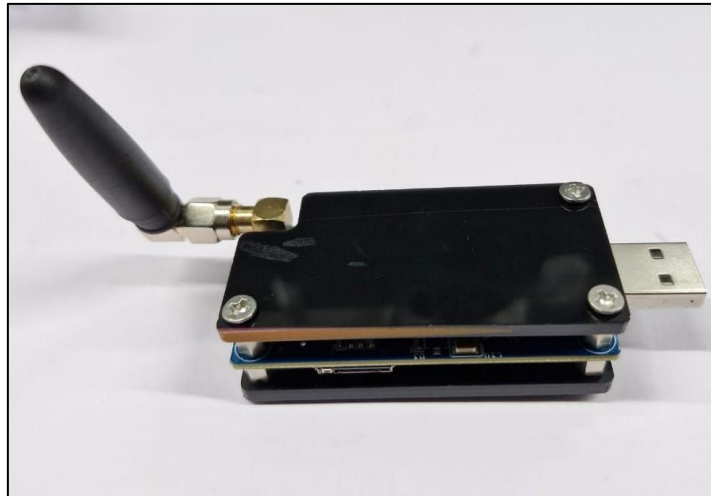


Figure 2 USB Dongle 4G

A USB dongle 4G connected to an EV charging station's Human-Machine Interface (HMI) is critical for providing real-time communication, remote monitoring, and intelligent charging system management.

It is especially useful for distant or off-grid circumstances where wired internet access is unavailable. With its plug-and-play capability, compatibility with various HMI systems, and strong security features, the dongle 4G is an important component in improving the efficiency and reliability of EV charging stations.

5.1 Overview

5.1.1 Feature

List of Feature

High-Speed Connectivity:

Fast internet connections enable real-time communication between the HMI and other devices or systems.

Plug-and-Play Functionality:

Easy to connect into HMI systems without the need for sophisticated setups.

Wide Coverage:

Operates on cellular networks, allowing the HMI to function in faraway places without requiring wired connections such as Ethernet.

Compact Design:

The dongle is small and portable, and adds minimal weight to the HMI system, making it ideal for space-constrained applications.

Low Power Consumption:

Designed to consume low power, it is perfect for remote site installations where power efficiency is crucial.

5.1.2 Application

List of Applications

Remote Diagnostics:

Access real-time data and perform diagnostics without having to be present.

Data Logging and Analysis:

Transfer data logs to cloud servers for analysis.

IoT Integration:

Connect HMI systems to the Internet of Things (IoT) for smart charging infrastructure.

5.2 Function

5.2.1 Technical Specification

Electrical Properties

Voltage	5V DC
Current	500 mA
Power Consumption	2.5 W

Communication

Protocol	UART
Network	GSM Modem (4G LTE fall back to 2G)

Connector

Interface	USB-A Male
Antenna	SMA Female

Mechanical Properties

Dimension	64 (L) X 32 (B) X 21 (H) mm
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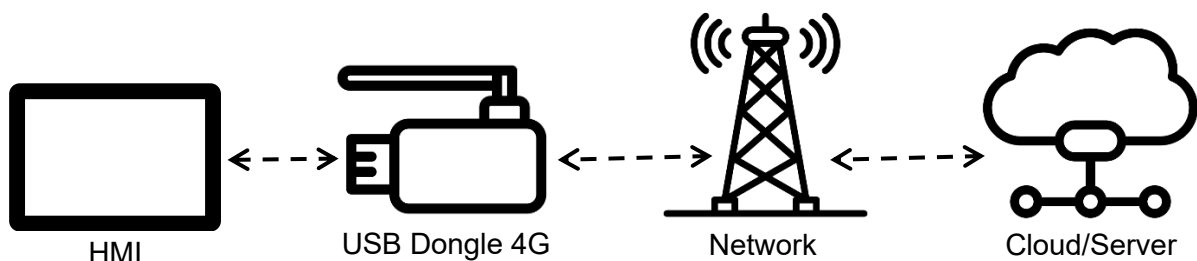
Data Type

JSON Format and Suggestion Format


Ambient Condition

Operating Temperature	-20°C to 70°C
Storage / Transport Temperature	-20°C to 70°C

5.2.2 Block Diagram



6. Network Connection Verification

NOTE	SIM Card
	<p>The user should insert the SIM card into the USB Dongle 4G and ensure that the SIM card has an active internet plan.</p>

Step 1. Connect your USB dongle to your HMI's USB-A female connector.



Figure 3 USB Dongle 4G Connected with HMI.

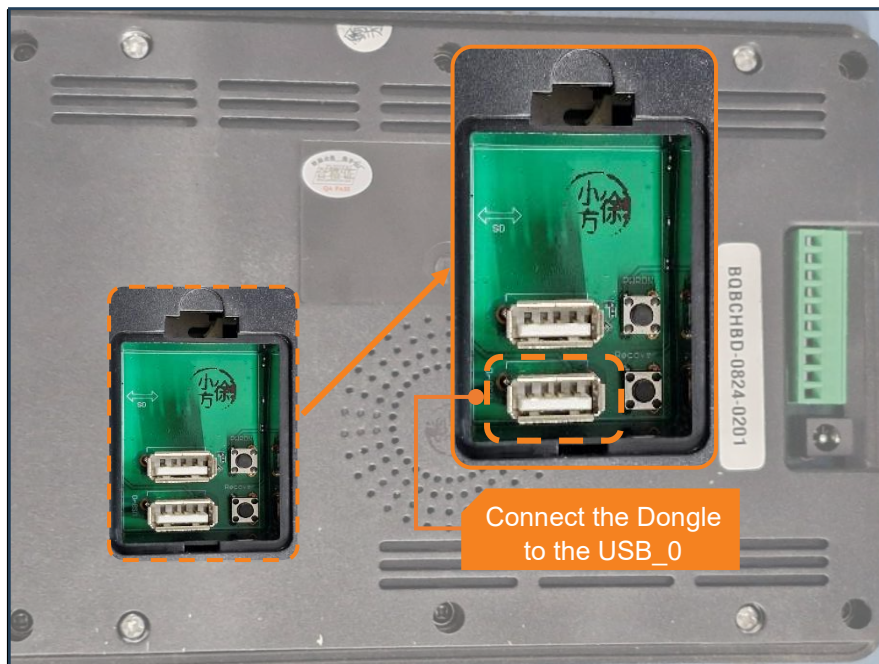


Figure 4 Connect the Dongle to the USB_0

Step 2. Check the internet network in your HMI's notification panel on the right side of the screen, as shown in the image.

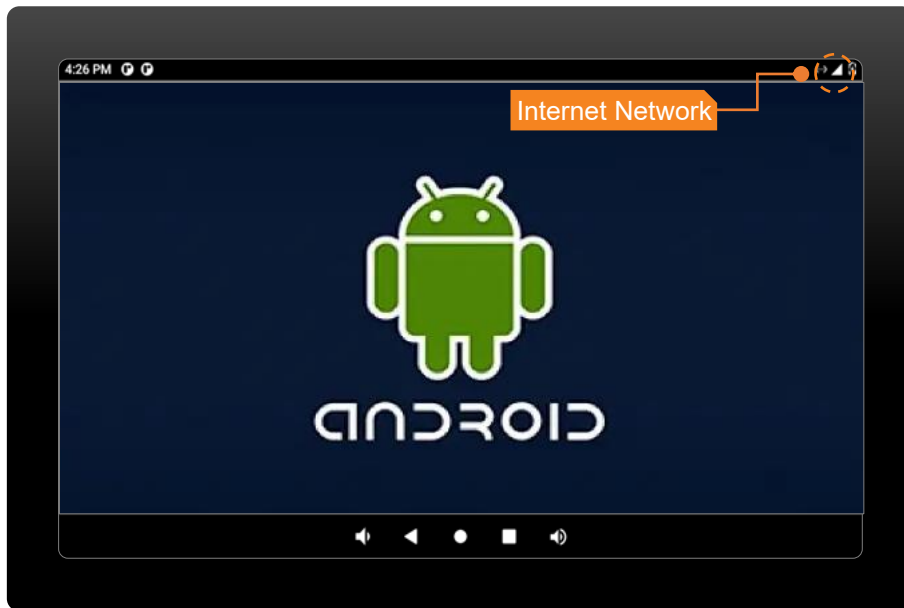


Figure 5 Internet Network.

Step 3. Open the web browser from your HMI's menu.

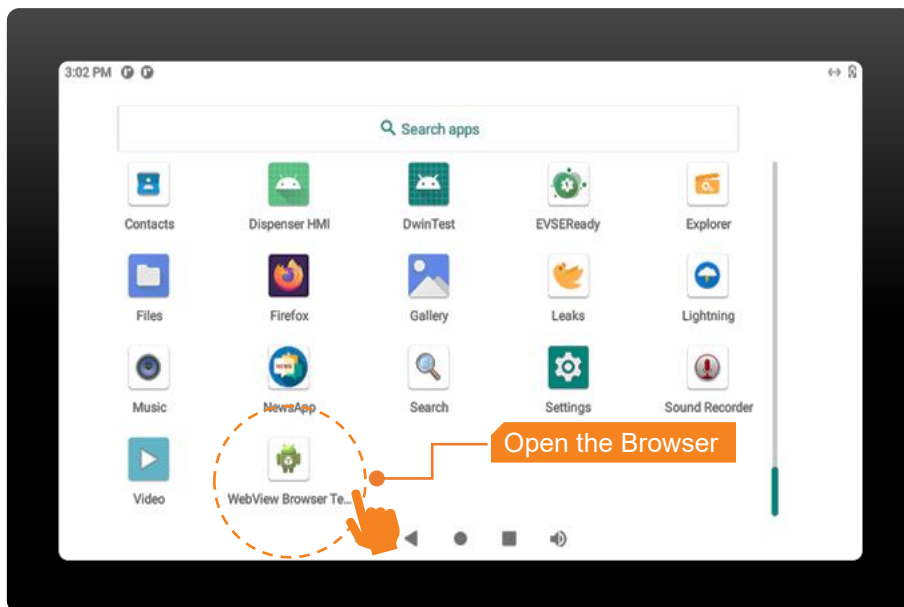


Figure 6 Open the Browser.

Step 4: Enter www.google.com.

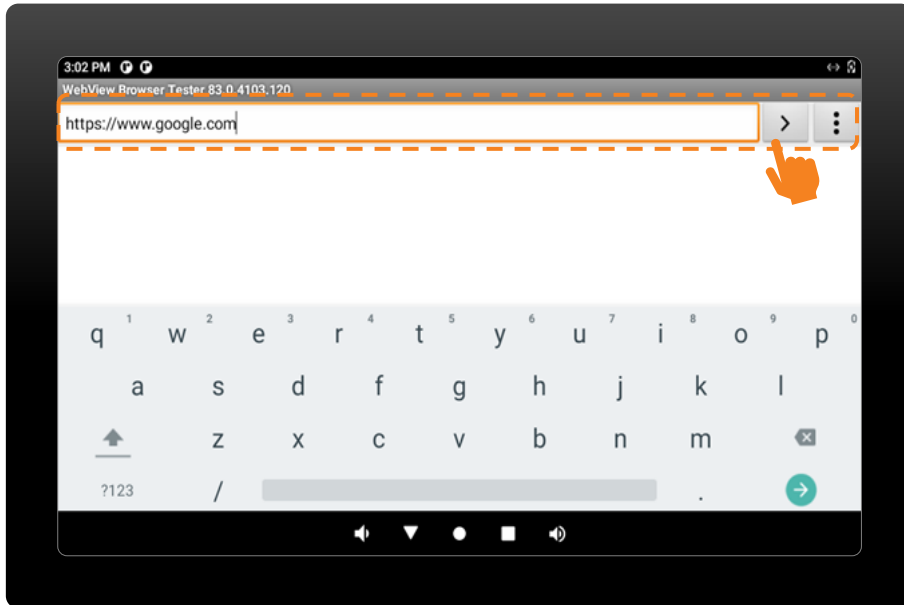


Figure 7 Enter www.google.com

Step 5. After successfully loading google page into your HMI, connection verification is successful.

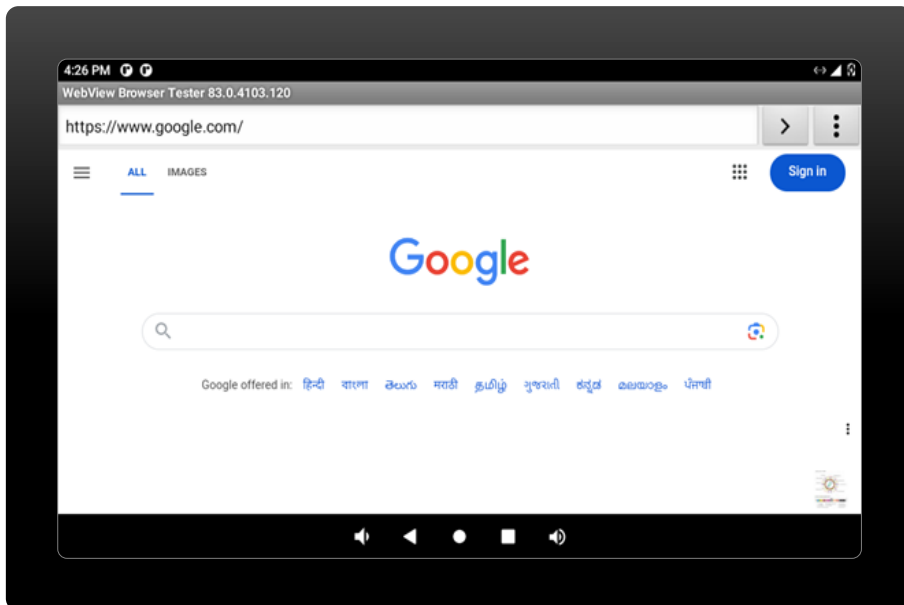


Figure 8 The Google page is successfully loaded using the USB Dongle 4G.


7. Portal

To access the portal, please contact Bacancy Systems' Support team, who will provide you with the portal URL, User ID, and Password.

8. Appendix


8.1 Abbreviations and Glossary

<i>mA</i>	<i>A milliampere is one-thousandth of an ampere, which is the base unit for measuring electrical current.</i>
<i>DC</i>	<i>Direct current (DC) is one-directional flow of electric charge.</i>
<i>EV</i>	<i>An EV is defined as a vehicle that can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source.</i>
<i>GSM</i>	<i>GSM stands for Global System for Mobile Communications. It's a standard that specifies how 2G (second generation) cellular networks operate.</i>
<i>LTE</i>	<i>LTE stands for Long Term Evolution. It's a term used for the particular type of 4G that delivers a fast mobile Internet experience.</i>
<i>SMA</i>	<i>SMA (Sub Miniature version A) connectors are semi-precision coaxial RF connectors developed in the 1960s as a minimal connector interface for coaxial cable with a screw-type coupling mechanism.</i>
<i>USB</i>	<i>Universal Serial Bus is an industry standard, developed by USB Implementers Forum, that allows data exchange and delivery of power between many types of electronics</i>
<i>W</i>	<i>The symbol W is the International System of Units (SI) symbol for the watt, which is the standard unit of power. One watt is equal to one joule per second.</i>

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