

**LTE TDD**

# **LTE TDD BBU3910A Product Description**

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# 1 Overview

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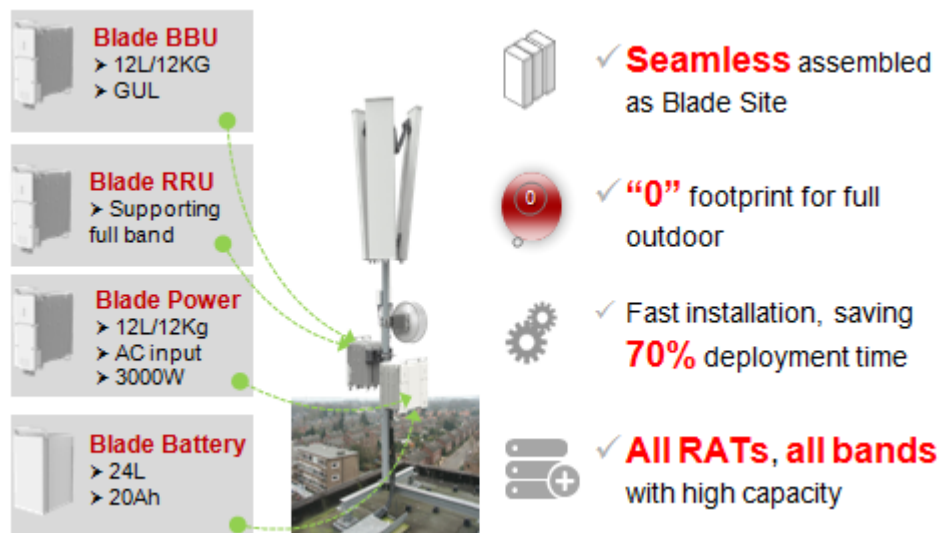
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## 1.1 Product Positioning

With the rapid development of services in the MBB era, the wireless network is featured by multiple modes and multiple frequency bands and site acquisition is becoming a challenge to the network deployment. Inheriting the successful experience of the blade radio remote unit (RRU), Huawei applies the blade architecture into other products such as the baseband control unit (BBU), power supply module, and batteries. This reduces the size of equipment and unifies the form of products. In this way, different modules such as the RRU, BBU, power supply module, and battery can be randomly assembled, contributing to a more flexible network deployment and convenient maintenance. This helps operators rapidly expand the MBB network capacity with limited sites and costs.

A blade site supports multiple frequency bands, multiple modes, multiple carriers, and MIMO. This kind of sites can be installed on a pole, wall, and tower, thereby requiring little installation space. In addition, the blade site boasts multiple technological breakthroughs. For example, it improves the transmit power by 50% with the same size and can be applied in different outdoor scenarios with advanced heat conduction and heat dissipation technologies.

Supposed to be GA in Q4 of 2014, the blade site solution includes blade BBU (BBU3910A1 and BBU3910A3), blade power (OPM50M), blade battery (IBBS20D), and blade RRU. The BBU3910A1 must be used in SRAN10.1 or later versions, the BBU3910A3 must be used in SRAN10.0 or later versions, and the blade power and blade battery can supply power to all blade RRUs in SRAN8.0.



## 1.2 Functions

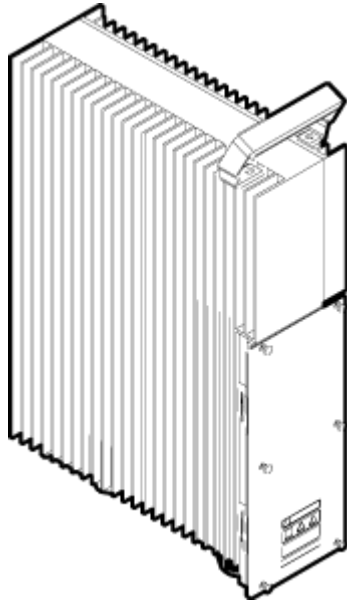
The BBU3910A is an outdoor baseband control unit and integrates the main control board, transmission board, and baseband board. The BBU3910A has the following functions:

- Manages the entire base station system in terms of operation, maintenance, signaling processing, and system clock.
- Provides physical ports for information exchange between the base station and the transport network.
- Provides an OM channel between the base station and the operation and maintenance center (OMC).
- Processes uplink and downlink baseband signals and provides common public radio interfaces (CPRIs) for communication with the RF modules.
- Provides ports for receiving and transmitting signals from environment monitoring devices.

## 1.3 Appearance

Figure 1-1 shows the appearance of a BBU3910A1 and BBU3910A3.

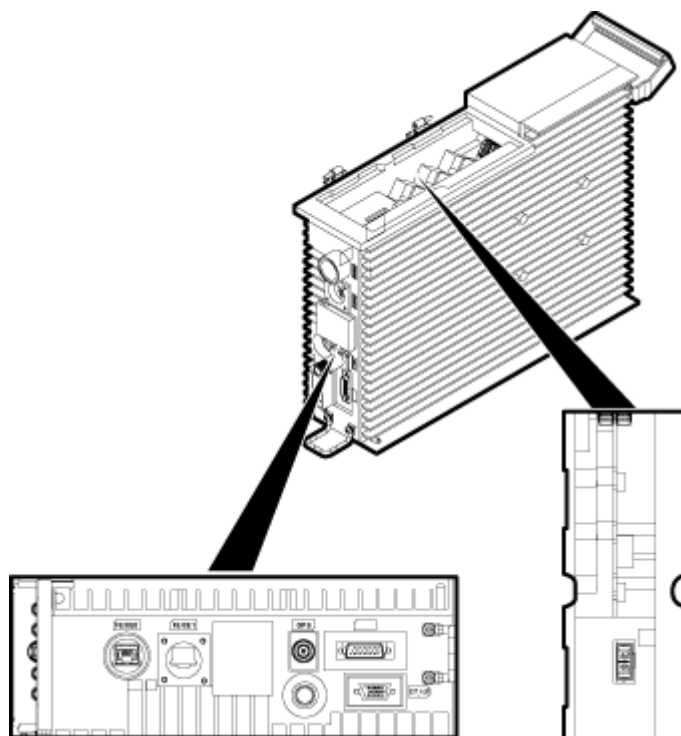
**Figure 1-1** Appearance of the BBU3910A1 and BBU3910A3



## 1.4 Ports

The BBU3910A1/BBU3910A3 has a modular structure. Its external ports are located at the bottom of the module and in the cabling cavity. Figure 1-2 shows the ports on the BBU3910A1/BBU3910A3 panels, as described in Table 1-1.

**Figure 1-2** Ports on the BBU3910A1/BBU3910A3 panels



**Table 1-1** Ports on the BBU3910A1/BBU3910A3 panels

Identifier	Connector	Quantity	Description
GPS	N	1	Global Positioning System (GPS) antenna port
ETH	RJ45	1	Local maintenance Ethernet port
USB	USB	1	Local USB port
PWR	EPC connector	1	Power port
HEI 0~1	QSFPP+	2	Reserved for interconnection
CPRI 0~5	SFP+	6	CPRI ports
GE0	RJ45	1	Transmission electrical port
GE1	SFP	1	Transmission optical port
E1/T1	DB26	1	E1/T1 transmission port
EXT-ALM	DB26	1	Dry contact, RS485 port

# 2 Technical Specifications

- 2.1 Capacity
- 2.2 Transmission Ports
- 2.3 Power Supply
- 2.4 Equipment Specifications
- 2.5 Environmental Specifications

## 2.1 Capacity

**Table 2-1** Capacity of a BBU3910A1/BBU3910A3

Item	Specifications
Maximum number of cells supported by a single BBU3910A1	3 cell
Maximum number of cells supported by a single BBU3910A3	6 cell
Maximum throughput per cell (20 MHz):	<ul style="list-style-type: none"> <li>• Downlink data rate at the Media Access Control (MAC) layer:                             <ul style="list-style-type: none"> <li><b>eRAN TDD10.1:</b> 172 Mbit/s (SA2, DL 4×4 MIMO base on TM9)</li> <li><b>eRAN TDD 11.0:</b> 210Mbit/s(SA2, DL 4×4 MIMO base on TM3 or TM4)</li> <li><b>eRAN TDD 11.1/eRAN TDD 12.0/eRAN TDD12.1:</b> 284Mbit/s(SA2, DL 4×4 MIMO base on TM3 or TM4)</li> </ul> </li> <li>• Uplink data rate at the MAC layer:                             <ul style="list-style-type: none"> <li>30 Mbit/s (SA1, UL 2×4 MU-MIMO)</li> <li>40 Mbit/s (SA1, UL 2×8 MU-MIMO)</li> </ul> </li> </ul>
Maximum throughput per eNodeB	Uplink and downlink data rate at the MAC layer: 1500 Mbit/s



Item	Specifications
Maximum number of UEs in RRC connected mode per eNodeB	3600(10/15/20 MHz bandwidth)
Data radio bearer (DRB)	8 DRBs per UE working at the same time
BHCA (Busy Hour Call Attempt)	<ul style="list-style-type: none"> <li>• 396000 per eNodeB with one BBU3910A3</li> <li>• 270000 per eNodeB with one BBU3910A1</li> </ul>

## 2.2 Transmission Ports

- Four E1/T1 ports (used to transmit and receive four E1/T1 signals)
- 1 FE/GE electrical port
- 1 FE/GE optical port

## 2.3 Power Supply

Table 2-2 describes the input power of a BBU3910A1/BBU3910A3.

**Table 2-2** Input power

Item	Specifications
Input power	-48 V DC; voltage range: -38.4 V DC to -57 V DC

The BBU3910A1/BBU3910A3 configured with an external OPM50M can also be used in AC scenarios. Table 2-3 shows the technical specifications of an OPM50M.

**Table 2-3** Technical specifications of an OPM50M

Item	Specifications
Dimensions (H x W x D)	400 mm x 120 mm x 300 mm
Weight	≤ 12 kg
Input power	220 V AC; voltage range: -176 V AC to 290 V AC
Output power	3000 W
Operating temperature	-40°C to +55°C
Relative humidity	5% RH to 95% RH
Protection class	IP65

Item	Specifications
Atmospheric pressure	55 kPa to 106 kPa
Heat dissipation capability	200 W

## 2.4 Equipment Specifications

**Table 2-4** Equipment specifications of the BBU3910A1/BBU3910A3

Item	Specifications
Dimensions (H x W x D)	400 mm x 300 mm x 100 mm
Weight	≤ 12 kg

## 2.5 Environmental Specifications

**Table 2-5** Environmental specifications of the BBU3910A1/BBU3910A3

Item	Specifications
Operating temperature	−40°C to +55°C (without solar radiation)
Relative humidity	10% RH to 100% RH
Protection class	IP65
Atmospheric pressure	60 kPa to 106 kPa
Heat dissipation capability	150 W

# 3 Acronyms and Abbreviations

**Table 3-1** Acronyms and abbreviations

Acronym and Abbreviation	Full Name
BBU	Baseband Unit
CPRI	Common Public Radio Interface
DL	Downlink
FE	Fast Ethernet
GE	Gigabit Ethernet
GPS	Global Positioning System
LMT	Local Maintenance Terminal
LTE	Long Term Evolution
MAC	Media Access Control
MIMO	Multi-input and Multi-output
OMC	Operation and Maintenance Center
UL	Uplink