

Prepared (also subject responsible if other) EAB/SEMCON Staffan Paulusson		No EN/LZT 720 0491 Uen	
Approved EAB/RKW Lena Jonsson Borg	Checked	Date 2004-12-28	Rev R1A
		Reference	

## RBS 2107

### Radio Base Station

#### Copyright

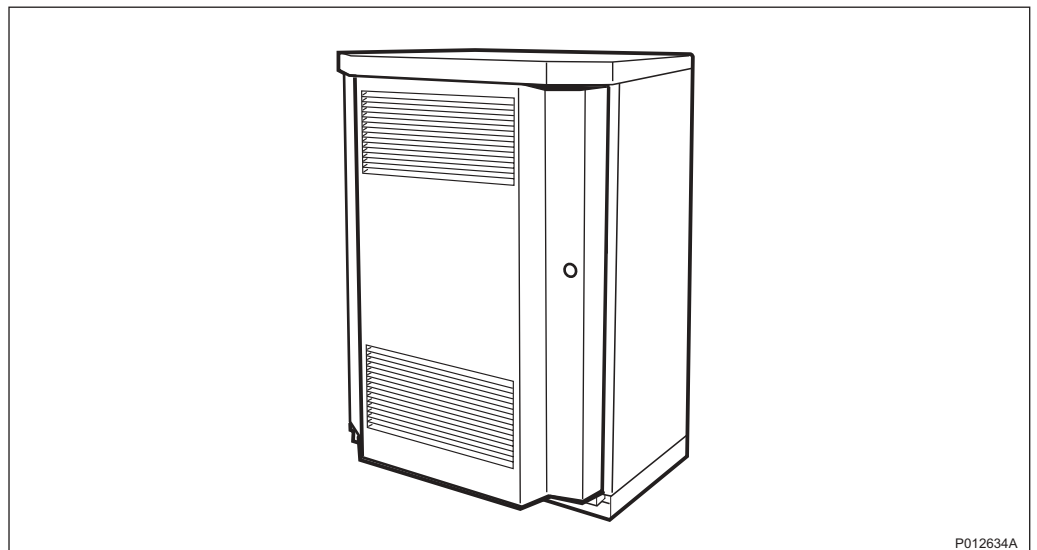
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#### Abstract

The RBS 2107, a member of the RBS 2000 family, is a 6-Transceiver (TRX) radio base station for outdoor applications. It can be configured for omni cells or for multi-sector cells of up to three sectors.



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## 1 Product Overview

The RBS 2107 is a medium-capacity base station. It is used for outdoor applications, with up to three double TRansceiver Units (dTRU). There is space inside the cabinet for transmission equipment and battery backup.

The RBS 2107 is designed to be transported as a fully assembled cabinet, with the exception of batteries, to the site. All units in the cabinet are easily accessible from the front of the cabinet, which means it can be positioned against a wall.

### 1.1 Main Features

The RBS 2107 supports the following features:

- 6 TRXs
- Discontinuous transmission and reception
- Duplex filters
- Dynamic power regulation
- Encryption and ciphering
- EDGE
- Expansion by TG synchronisation
- External alarms
- Frequency hopping
- Internal battery backup
- Positioning with GPS
- 200 – 250 V AC mains power supply system
- Radio configurations supported on 800, 900 (E-GSM and P-GSM), 1800, and 1900 MHz
- Receiver diversity
- Transmission interface; the following transport network interface alternatives exist:

T1 1544 kbit/s, 100  $\Omega$ , with PCM synchronisation

E1 2048 kbit/s, 75  $\Omega$ , with PCM synchronisation

E1 2048 kbit/s, 120  $\Omega$ , with PCM synchronisation

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## 1.2 Variants

The following variants are available and can be combined according to ordering information:

- Two standard colours
- AC service outlet (four variants depending on fields of application)
- Base frame, 250 mm (709/BYB 415 01/08)

## 1.3 Optional Equipment

The equipment listed below is available but not necessary for basic operation:

- Battery backup
- Bias injector
- DC/DC converter
- DC filter
- dual duplex Tower Mounted Amplifier (ddTMA)
- Digital Cross Connector (DXX) – two card
- External Synchronization Bus (ESB)
- External alarms
- GPS (mounted externally)
- Keys (operator specific keys)
- MiniLink
- OverVoltage Protection (OVP)
- Redundant Power Supply Unit (PSU)
- Smoke detector
- Tower Mounted Amplifier-Control Module (TMA-CM)
- Transmission adapter (75  $\Omega$  to 120  $\Omega$ )

## 2 Dimensions

This section describes the dimensions and colour of the RBS 2107.

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**Size and Weight**

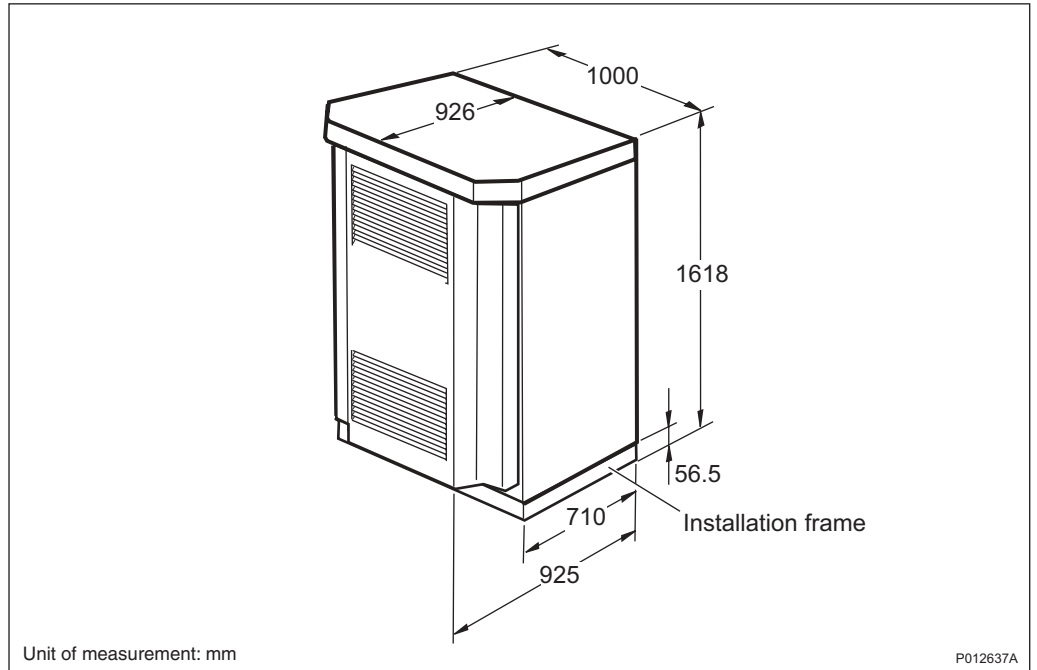


Figure 1 RBS 2107 Dimensions

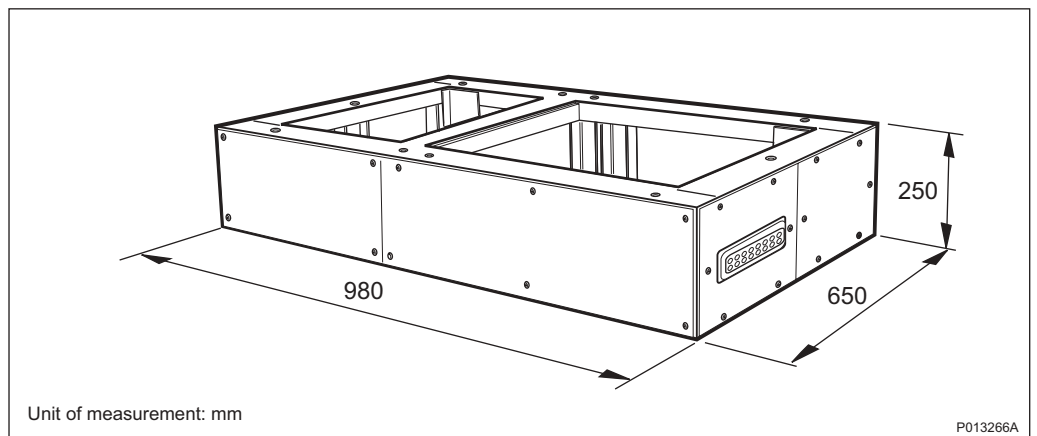


Figure 2 Base Frame Dimensions

Table 1 RBS 2107 Weights

Unit	Weight
Fully equipped including batteries	425 kg

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Fully equipped excluding batteries	390 kg
Door with climate unit	150 kg (75 kg)

### Surface and Colour

The RBS 2107 has a surface quality according to Ericsson standard class A3/B6.

Table 2 RBS 2107 Colours

Colour	Reference Number	Ericsson Number
Grey	RAL 7035	MZY 509 01/8119
Green	NCS 8010-G 10Y	MZY 509 01/585

## 3 Space Requirements

Installation and maintenance require that the door can be opened at least 90°. In practice this means that the space in front of the cabinet must be kept clear for a distance of 1000 mm, see *figure below*. No free space is needed at the back of the cabinet.

If the RBS is located next to another cabinet of the same depth, no adjacent space is required. If the RBS is placed next to a wall, or any object protrudes on the left side, then 175 mm clearance is required to the left of the cabinet.

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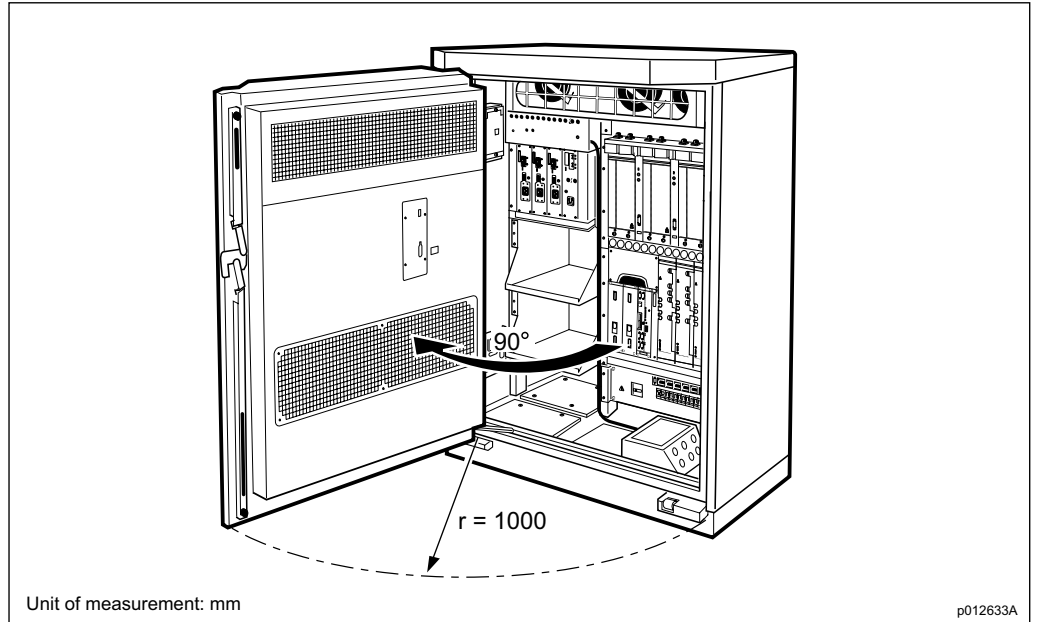


Figure 3 Door Opening Requirements

**Note** All installation and maintenance work can be performed with the door open 90°.

During service a tent can be placed over the cabinet to protect the equipment from bad weather.

**Footprint**

The footprint of the RBS 2107 is 1000 mm wide and 710 mm deep. Note that the door, which protrudes 216 mm, is not included in the footprint because its lower edge is clear of the ground.

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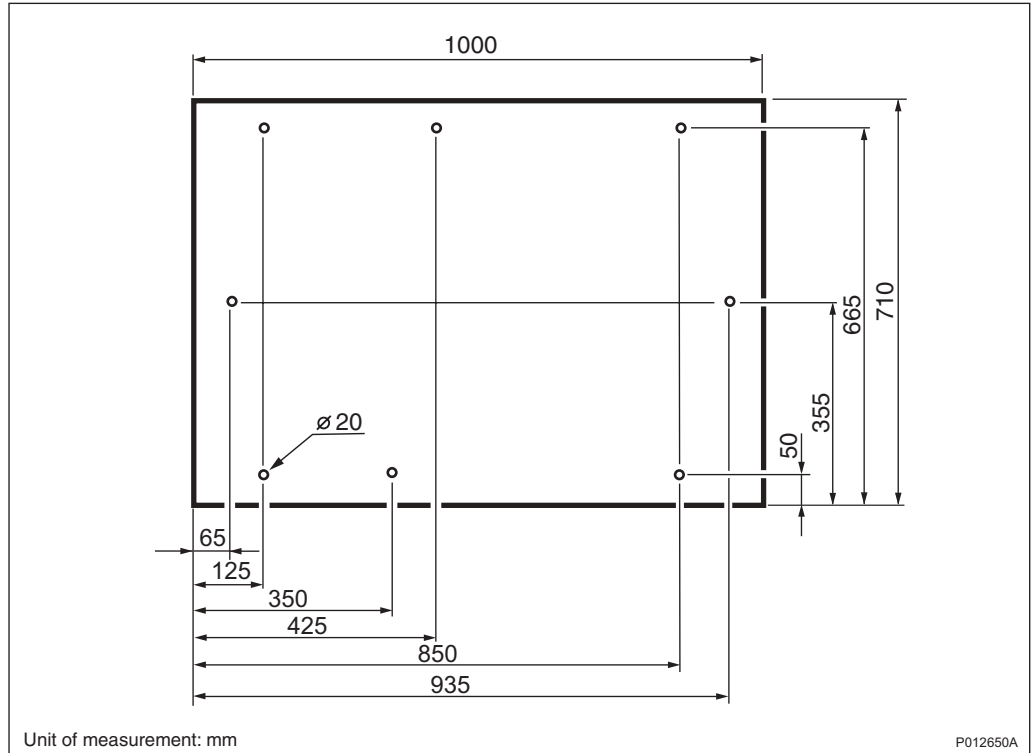


Figure 4 Installation Frame Holing Pattern

## 4 Environment

The RBS 2107 is designed to operate within the limits stated for climatic requirements listed in the table below, and to withstand ground vibrations as stated below.

### 4.1 Operating Environment

The table below shows the operating environment and climatic specifications for the RBS 2107.

#### Climatic Requirements

Table 3 Climatic Requirements

Description	Temperature	Relative Humidity
Normal Operational Conditions	-33°C to +45°C	15 – 100%



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Description	Temperature	Relative Humidity
Transport	-40°C to +70°C	5 – 100%
Storage	-25°C to +55°C	10 – 100%

### Ground Vibrations

The RBS 2107 is designed to fulfill the requirements of earthquake protection according to IEC 60 721-3-4 class/4M5/ and ETSI EN 300 019-1-4 class 4.1.

### Levelling

To ensure that the cabinet is level, the floor must be level to within  $\pm 3$  mm per 2000 mm and the floor gradient must be within  $\pm 0.1^\circ$ .

## 4.2 Environmental Impact

This section describes the effects the cabinet has on the environment.

### Acoustic Dispersion Heat Exchanger

The cabinet noise dispersion for an RBS 2107 with heat exchanger climate unit is shown in the two figures below **[TO BE DEFINED]**. The figures show the noise dispersion generated by a free-standing cabinet and by a cabinet mounted against a wall.

**Note** The acoustic noise dispersion values for a free-standing cabinet and a cabinet installed against a wall were tested according to the ISO 9614-2 standard. Deviations from these values can be caused by materials in the environment where the cabinet is installed. Objects near the cabinet can reflect or absorb sound and thus affect acoustic dispersion.

### Heat Dissipation

The RBS 2107 generates an average heat load of 1600 W. The exact figure depends on configuration, equipment, and site-specific conditions.

## 4.3 Compliance Distances for Electromagnetic Exposure

The compliance distance is the minimum separation that should be kept between the antenna and a person in order to ensure that the ICNIRP RF exposure limits are not exceeded.

**Note** ICNIRP, "Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz)", International Commission on Non-Ionizing Radiation Protection, Health Physics, vol. 74, no. 4, 1998.

Ericsson has performed a free-space near-field RF exposure assessment of typical configurations of the RBS 2107 with a recommended antenna. The resulting dimensions, in metres, for a compliance boundary for both public and occupational exposure, are shown in *table 4*.

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The compliance boundary is defined as a cylinder around the antenna, see *Figure below*. The antenna is not located at the centre of the cylinder. Instead it is located almost at the edge, facing towards the center of the cylinder. The distance between the antenna's rear and the edge of the cylinder is the "Distance behind antenna". The height of the cylinder is the antenna height plus equal distances above and below the antenna. The cylinder shape overestimates the compliance distances right beside the antenna.

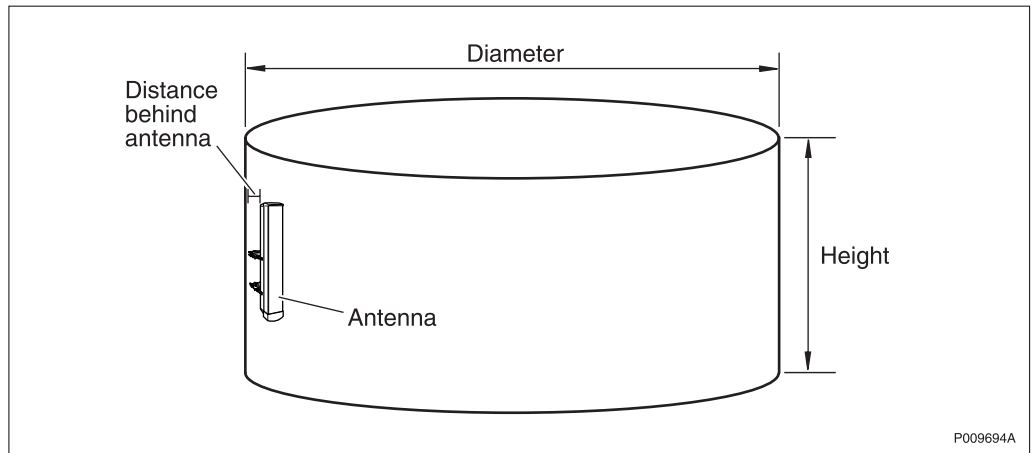


Figure 5 Compliance Boundary Cylinder

**Note** *table 4* shows an example for a typical antenna. As the antenna field distributions will differ, complete calculations or measurements may be necessary in order to establish the compliance boundary for other configurations chosen by the customer. For further information on calculation methods, see:



*Radio Site Installation Engineering Manual EN/LZT 720 0399*

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Table 4 Compliance Boundary Dimensions for the General Public (GP) and Occupational (O) Exposure for Typical Configurations

Configuration	Frequency (MHz)	Dimensions of Cylindrical Compliance Boundary in (m)					
		Diameter		Height		Distance Behind Antenna	
		GP	O	GP	O	GP	O
3x2 no hybrid	900	6	3	1.7	1.4	0.1	0.1
	1800	5	1	1.6	1.4	0.1	0.05
3x2 combined	900	4	1	1.5	1.4	0.1	0.1
	1800	2	0.5	1.4	1.4	0.1	0.05
3x1 TCC	900	6	3	1.7	1.4	0.1	0.1
	1800	5	1	1.5	1.4	0.1	0.05

The cylinder shape overestimates the compliance distances to the side of the antenna. In reality the compliance distances for occupational exposure to the side, in line with the front of the antenna, is less than 0.15 metres for all configurations above. For characteristics of an antenna recommended for typical configurations of RBS 2107, see *Table below*.

Table 5 Characteristics for a Typical Antenna (KRE 101 1916/1)

<b>Antenna Specifications</b>	X-pol macro RBS sector antenna
<b>Antenna Height</b>	1.3 m
<b>Horizontal Half-power Beam Width</b>	65 degrees
<b>Vertical Half-power Beam Width</b>	14.5 degrees at 900 MHz 7.8 degrees at 1800 MHz
<b>Antenna Gain</b>	14 dBi at 900 MHz 16.5 dBi at 1800 MHz
<b>Down Tilt</b>	0 degrees

The maximum power fed to the antenna, as a function of the number of carriers per antenna and the maximum power (including tolerances and transmission loss) per carrier, for RBS 2107 at 900 MHz and 1800 MHz, are given in *table 6*.

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Table 6 Maximum Power to Antenna for Various RBS 2107 Configurations

Configuration	Frequency (MHz)	Nominal Output Power per TRU (dBm)/(W)	Maximum Power into Antenna <sup>(1)</sup> (dBm)/(W)
3x2 no hybrid	900	45.2 / 33	47.2 / 53
	1800	44 / 25	46 / 40
3x2 combined	900	41.7 / 15	43.7 / 23
	1800	40.5 / 11	42.5 / 18
3x1 TCC	900	47.7 / 59	46.7 / 47
	1800	46.5 / 45	45.5 / 35

(1) Including power tolerance level (+2 dB) and transmission losses (-3 dB).

#### 4.4 Materials

All Ericsson products fulfil legal, market, and Ericsson requirements regarding:

- Fire resistance of material, components, wires and cables
- Declaration of materials
- Use of restricted materials
- Recycling

#### Packaging Material

The packaging materials are recyclable.

### 5 Hardware Units

A high level of availability is achieved using strict functional modularity in a system of standardised Replaceable Units (RU). A failed RU can easily be replaced by a new one.

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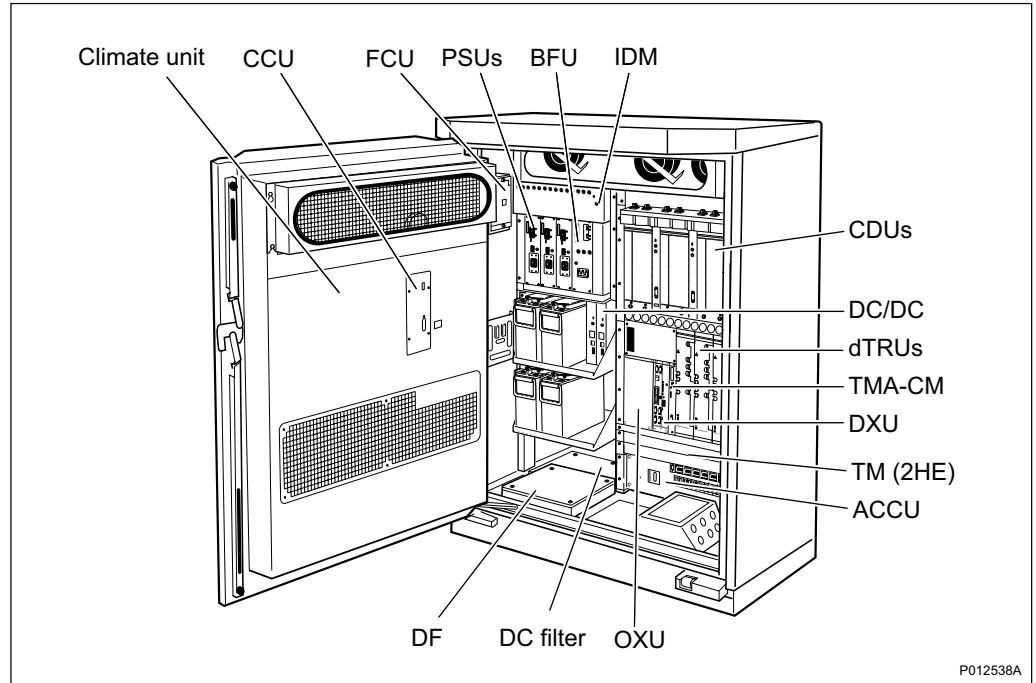


Figure 6 RBS 2107 Overview

## 5.1 Standard Hardware Units

This section briefly describes the standard hardware units required, irrespective of configuration or frequency.

### ACCU-32

The AC Connection Unit (ACCU) connects, disconnects, and distributes the incoming AC power supply to the PSUs and the climate unit.

Number of units: 1

### BFU-21

The Battery Fuse Unit (BFU-21) supervises the connection or disconnection of the batteries. It can also be used to provide prioritised power supply, for example, to the transmission equipment.

Number of units: 1

### Climate Unit

The climate unit maintains the temperature and humidity inside the cabinet. The climate unit is mounted in the door of the cabinet. The heat exchanger climate unit provides heating and cooling through forced convection. It has no refrigerating capacity; so the cabinet cannot be cooled to a temperature lower than the outside (ambient) temperature.

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Number of units: 1

### CDU-J

The Combining and Distribution Unit (CDU-J) is the interface between the transceivers and the antenna system. All signals are filtered before transmission and after reception by means of bandpass filters. The CDU-J allows several dTRUs to share antennas.

The CDU-J combines transmitted signals from several transceivers and distributes the received signal to several transceivers. The CDU-J can be configured either for high capacity or for high coverage. It is a combiner that can be used for synthesizer hopping (baseband and synthesizer hopping only) and supports EDGE. To achieve capacity the CDU-J uses the hybrid combiner in the dTRU, and with coverage the CDU-J is used in configurations where the hybrid combiner in the dTRU is not used.

Number of units: 1 – 3

### DXU-21

The Distribution Switch Unit (DXU-21) is the central control unit for the RBS. It supports the interface to the Base Station Controller (BSC), and it collects and transmits the alarms. The DXU-21 controls the power and climate equipment for the RBS. It has a removable compact flashcard that enables replacement of a faulty DXU-21 without the need for loading RBS software from the BSC.

The DXU-21 is provided with four connections for transmission interfaces. It can handle both 2048 kbit/s (E1) and 1544 kbit/s (T1) transmission interfaces. The DXU-21 supports EDGE.

Number of units: 1

### dTRU

The double TRansceiver Unit (dTRU) contains two TRXs used to transmit and receive two radio carriers.

It has a built-in combiner with the option to combine two TX signals into one TX output. It is also prepared for four-branch RX diversity for further improvements in sensitivity.

One version of the dTRU supports only GMSK and the other version supports both GMSK and EDGE.

Number of units: 1 – 3

### FCU

The Fan Control Unit (FCU) controls the fans in the cooling system by regulating fan speed. The FCU is controlled by the DXU.

Number of units: 1

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### **IDM**

The Internal Distribution Module (IDM) is a panel for distributing the internal +24 V DC power to the various units. Each distribution circuit in the cabinet is connected to a circuit breaker in the IDM.

Number of units: 1

### **PSU**

The PSU converts 120 – 250 V to regulated +24 V DC.

Number of units: 2 – 3

### **DF**

The Distribution Frame (DF) is a connection field for external alarms, ESB, PCM links, GPS, and DC out. It also provides space for optional configuration-dependent overvoltage protection.

Number of units: 1

## **5.2 Optional Hardware Units**

This section describes the RBS 2107 optional hardware units.

### **Battery Backup**

Batteries can be installed inside the cabinet in the upper or both battery shelves located to the left. An external source of battery supply can also be used through the DC filter. If this is the case, then internal batteries cannot be used.

### **Bias Injector**

The bias injectors are used to provide the TMA with DC power from the TMA-CM over the RX/TX feeder cables. The bias injectors are attached at the antenna feeder inlet.

Number of units: 0 – 6

### **DC/DC Converter**

The DC/DC converter can supply -48 V DC power to transmission equipment in the TM compartment. It converts +24 V DC to -48 V DC.

Number of units: 0 – 2

### **DC Filter**

The DC filter is the interface between a +24 V DC external power source, such as a battery, and the IDM inside the RBS.

The DC filter has the following main functions:

- ElectroMagnetic Combatibility (EMC) filtering
- Connection of +24 V DC to the cabinet

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- Distribution of +24 V DC power to the IDM

### ddTMA

The ddTMA is to be mast-mounted and placed close to the antenna. It improves the receiver sensitivity.

Number of units per cabinet: 0 – 6

### OVP

The OVP module is a connection and overvoltage protection device for external alarms, ESB, and PCM links. The OVP modules protect equipment inside the RBS from overvoltages and overcurrents that can occur in external lines. Examples of equipment requiring OVP include transmission lines, ESBs, and external alarms. The OVP modules are mounted in the DF.

Number of units: 0 – 7

### DXX

The DXX is a plug-in unit that combines cross-connect, control and interface functions. It has four 2 Mbit/s interfaces complying with the G.703 standard. If the DXX option is used, then it is located in the 12 TE (x 5.08 mm) Optional Expansion Unit (OXU) position in the DXU/dTRU subrack.

Number of units: 0 – 1

### ESB

TG synchronisation is the technology used to expand one RBS 2107 cabinet with another RBS cabinet in the same cell. The ESB is the cable between the DXUs.

Number of units: 0 – 1

### Gas Collecting Kit

The batteries can be fitted with a gas evaporating kit, which removes gases from the cabinet.

Number of units: 0 – 1

### OXU

The following Optional Expansion Unit (OXU) positions are available:

- Two spaces in the DXU/dTRU subrack 1 x 5 TE and 1 x 12 TE (x 5.08 mm)
- Two 19-inch OXU positions are available below the DXU/dTRU subrack

RUs that are often located in the OXU slots include the DXX and the TMA-CM. The 19-inch position below the DXU/dTRU subrack is used for transmission equipment.



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### Smoke Detector

The smoke detector detects smoke inside the cabinet. When smoke enters the detector an alarm is activated.

Number of units: 0 – 1

### TMA-CM

The Tower Mounted Amplifier-Control Module (TMA-CM) is used to provide a ddTMA with 15 V DC power through the bias injectors. It also identifies ddTMA faults and forwards this information to the alarm module in the RBS. If a TMA-CM is used, then it is located in the DXU/dTRU subrack. If a second TMA-CM is used, then it is located in the 5 TE (x 5.08 mm) OXU position.

Number of units: 0 – 2

## 6 Interfaces

This section lists all external connectors, as well as the test interface and the operator interface.

Internal connections, the test interface, and the operator interface are located in some cabinet hardware units.

### 6.1 External Connections

All external connectors enter through the bottom of the cabinet. The approximate locations of the connection fields are shown in the figure below to help plan cable inlet allowances.

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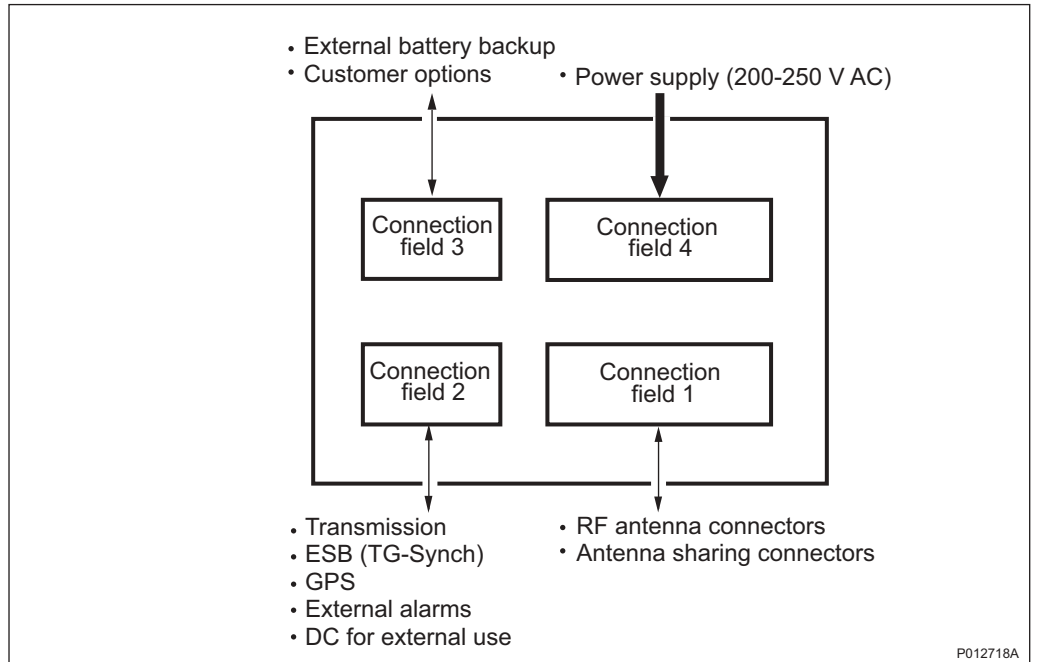


Figure 7 External Interfaces

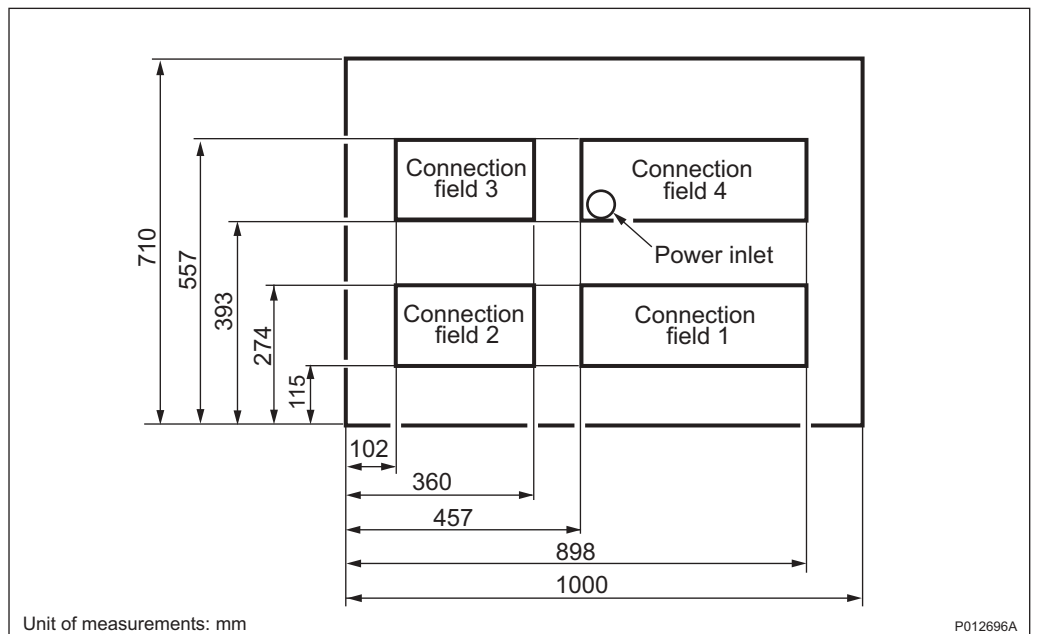


Figure 8 Cable Inlet Measurements

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Table 7 Cable Gland Capacity

Connection Field	Cables
1	See <i>Antenna Connections on page 20</i>
2	7 x 12 mm (diameter) OVP 1 x 15 mm (diameter) GPS 1 x (17 – 20 mm) (diameter) DC out
3	6 x (1 x 10 mm + 3 x 0.5 mm) (diameter)
4	1 x (17 – 28 mm) (diameter) AC Connection

### Connections on DF

The DF is a modular construction containing seven OVP modules for PCM links, external alarms, DC out (100 W), and ESB cables.

### Optional Configurations in the DF

The table below shows the options that can be used simultaneously through the OVP modules in the DF. DC out and GPS can always be used independently of the number of PCM lines, external alarms, and ESB configurations.

Table 8 Optional Configurations in the DF

No. of PCM Lines Used	4 Ext. Alarms	4 Ext. Alarms	4 Ext. Alarms	4 Ext. Alarms	ESB 1	ESB 2
2	X <sup>(1)</sup>	X	X	X	X	X
4	X	X	X	O <sup>(2)</sup>	X	O
6	X	X	O	O	O	O
8	X	O	O	–	O	O

(1) Usable with no restrictions or conflicts.

(2) Optional; can be used, but not together with one or more other optional (O) functions.

**Note** ESB 1 is always used in the RBS in an ESB chain. ESB 2 is used only if the RBS is between more RBSs in an ESB chain.

### OVP Modules

The capacity of the OVP modules is shown in the table below.

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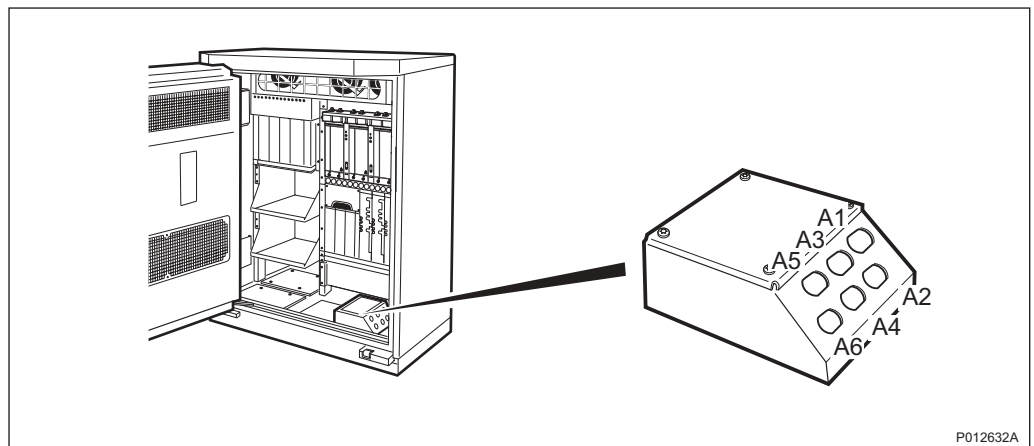
Table 9 OVP Modules Capacity

<b>PCM</b>	2RX/TX pairs / OVP module
<b>ESB</b>	1 ESB (3x3 pairs)
<b>External Alarm</b>	4 alarms (4 pairs)

**Note** All connection points are spring terminal.

**Antenna Connections**

The antenna connectors are accessible from the antenna connection box in the bottom of the cabinet. The intake plate in the bottom of the cabinet is equipped with six antenna cable connectors. These connections are shown in the figure and table below.



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Figure 9 Antenna Connections

Table 10 Antenna Connections

Connection Number	Connection To	Type of Connector
A1 – A6	Antenna	7-16" IEC 169-4

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## Other External Connections

Table 11 External Connections

Connection Location	Connection To	Type of Connector
AC connection box	AC mains connections	Screw terminal for wires 2.5 – 16 mm <sup>2</sup>
ACCU	AC service outlet	<ul style="list-style-type: none"> <li>• IEC 83:1975 standard C 2b (Sweden, Germany, and others)</li> <li>• IEC 83:1975 standard B2, same as BS 1363:1984 standard 13A (UK)</li> <li>• IEC 83:1975 standard A5-15 (USA)</li> <li>• SEV 1011 S 24507 (Switzerland)</li> </ul>
Reference earth	Earthing connection	M8 screw, 50 mm <sup>2</sup> stranded copper wire

### External Connections to Transmission Equipment

Optical fibre and MiniLink radio cables are connected to the transmission equipment through connection field 3. Twisted pair cables are connected to the transmission equipment through the DF-OVP.

## 6.2 Test Interface

The RBS 2107 is equipped with test interfaces for the connection of external equipment.

CLU	Self-test button
OMT	The Operation and Maintenance Terminal (OMT) interface is located on the front of the DXU.
System voltage test	The system voltage test port provides a test point to the system voltage (+24 V DC). It is located on the IDM.

## 6.3 Operator Interface

The Man-Machine Interface (MMI) in the RBS 2107 is consists of indicators and buttons located on the hardware units in the cabinet.

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		Reference	

Indicators	Unit	Description
Bat disconnect	BFU	Battery disconnected
Battery mode	DXU	Indicates that the RBS is running on battery
EPC bus fault	DXU, PSU, FCU, CCU, BFU	Communication to superior RU is lost
External alarm	DXU	One or more supervised external alarms are active
Fan fault	FCU	A fan is faulty
Fault	All RUs	Fault detected and localised to the RU
Heater fault	CCU	The heater is faulty
H/E external fan fault	CCU	A fan in the external circuit is faulty
H/E internal fan fault	CCU	A fan in the internal circuit is faulty
Local mode	dTRU, DXU	The RU is in local mode
Operational	All RUs	The RU is operational
Power fault	PSU	AC power or at least one phase is missing in the RBS
RBS fault	DXU	One or more faults are detected on RUs in the RBS
RF off	dTRU	No RF signal
TMA 1 – 6	TMA-CM	The TMA is operational
Transmission OK	DXU	Signal and frame sync. OK

### Buttons

Table 12 Switches and Circuit Breakers

Switch	Position	Function
Test button	CLU	CLU self-test
DXU reset	DXU	Resets the DXU and all subunits
Local/remote	DXU, dTRU	Changes mode between local and remote
TRU reset	DTRU	Resets the dTRU
Battery disconnected	BFU	Disconnects the battery supply
DC out 1	BFU	CB for DC out 1
DC out 2	BFU	CB for DC out 2

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Switch	Position	Function
EC	BFU	CB for EC supply
Mains switch	ACCU	Mains switch for power supply

## 7 Power System

This section provides information on the power system of the RBS 2107.

The main characteristics of the RBS 2107 power supply are as follows:

- Only Alternating Current (AC) mains supply is used
- Battery backup is optional and can be internal or external (but not both at the same time)
- The socket of the AC service outlet is available in four variants according to national standards

The figure below provides an overview of the power distribution system in the RBS 2107.

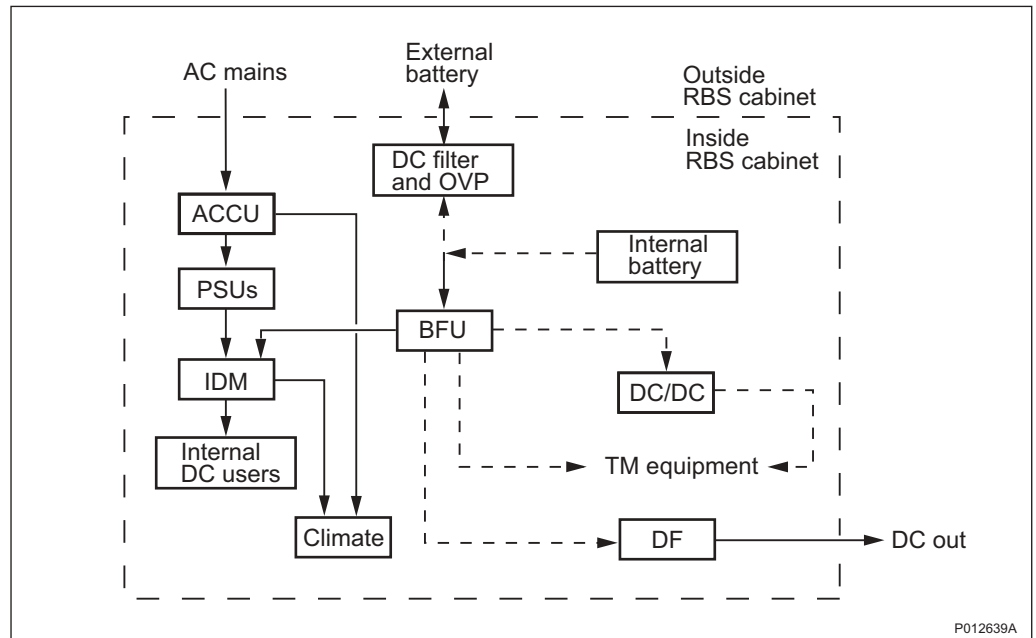


Figure 10 Power System

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## 7.1 Power Supply

This section describes the AC mains power supply, the external earth-fault circuit breakers, and the mains fuses.

### AC Mains Supply Voltage

Single-phase, two-phase, or three-phase AC can be used.

Table 13 Power Parameters

<b>Nominal Voltage</b>	200 – 250 V AC
<b>Operating Voltage</b>	180 – 275 V AC
<b>Nominal Frequency</b>	50 – 60 Hz
<b>Operating Frequency</b>	45 – 65 Hz
<b>Maximum Inrush Current (Total, All Phases)</b>	60 A for 10 ms (typical duration)
<b>PSU Capacity</b>	3 x 1200 W (3600 W total)
<b>BFU</b>	1 x 200 A

### External Earth-fault Circuit Breakers

If external earth-fault (ground-fault) circuit breakers are used, then the recommended minimum trip value is 100 mA.

### Mains Fuses

Table 14 Mains Fuses Recommendation

Minimum for Safe Function	Recommended for Maximum Selectivity	Maximum Allowed Fuse Rating
16 A <sup>(1)</sup> / 35 A	20 A <sup>(1)</sup> / 35 A	63 A

(1) High line 180 V AC three-phase/single phase.

## 7.2 Battery Backup

Battery backup is used to power the RBS 2107 during mains failure and also to protect the RBS 2107 from short interruptions in the mains supply.

### Internal Battery Backup

The following battery backup levels can be achieved in the cabinet:

- Full: 4-hour backup time
- Half: 2.5-hour backup time



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### External Battery Backup

Using a special adapter plate, the RBS 2107 can be installed on top of the external battery backup BBS 9500. The battery power cables are connected to the RBS 2107 through the DC filter.

## 7.3 Output Power to Transmission Equipment

The RBS can supply the transmission equipment with power according to the table below.

Table 15 Output Power

-48 V DC	Max. 200 W
+24 V DC	Max. 250 W
-48 V DC and +24 V DC	Max. 250 W

## 7.4 Power Consumption

The power consumption is shown in the table below.

Table 16 Power Consumption

<b>Power Consumption, Input Voltage &gt;200 V AC</b>
1700 W

## 8 Transmission

The RBS 2107 supports two transmission standards:

- T1 1.5 Mbit/s, 100  $\Omega$ , with PCM synchronisation
- E1 2 Mbit/s, 75  $\Omega$ , with PCM synchronisation
- E1 2 Mbit/s, 120  $\Omega$ , with PCM synchronisation

## 9 External Alarms

The RBS 2107 supports a maximum of 16 external alarms. The external alarm unit can set the alarm using either an open or a closed condition.

The alarm device connected to the screw terminals must be isolated by relay contacts. A closed contact (logic zero) is required to be below 2 k $\Omega$ , and an

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open contact (logic one) above 100 k $\Omega$ . The current through a closed 0  $\Omega$  contact is 1.2 mA. The voltage between terminals with an open contact is 24 V DC.

The external alarms are defined at the installation by using the OMT, or from the BSC using the remote OMT.

**Note** An installed DC/DC converter is hard-coded to alarm input 16 in the external alarm unit. Pin 16 is therefore unavailable.

**Note** An installed smoke detector is hard-coded to alarm input 2 and 3 in the external alarm unit. Pins 2 and 3 are therefore unavailable.

## 10 Standards, Regulations and Dependability

This section provides a brief overview of standards, type approval, and EMC.

### 10.1 Safety Standards

In accordance with market requirements the RBS 2107 complies with the following product safety standards:

- 73/23/EEC Low voltage directive
- IP 55 according to IEC 60529
- EN 60950-1 / IEC 60950-1
- EN 60215 / IEC 60215
- UL 60950-1
- CSA 950-1

### 10.2 Other Standards and Regulations

#### Marking

The product is marked with symbols to indicate compliance with product safety standards.

#### Type Approval Standards

The RBS 2107 complies with European Community and North American market requirements regarding radio performance. The product is marked with CE and FCC symbols to show compliance with the legal requirements of these regions.

