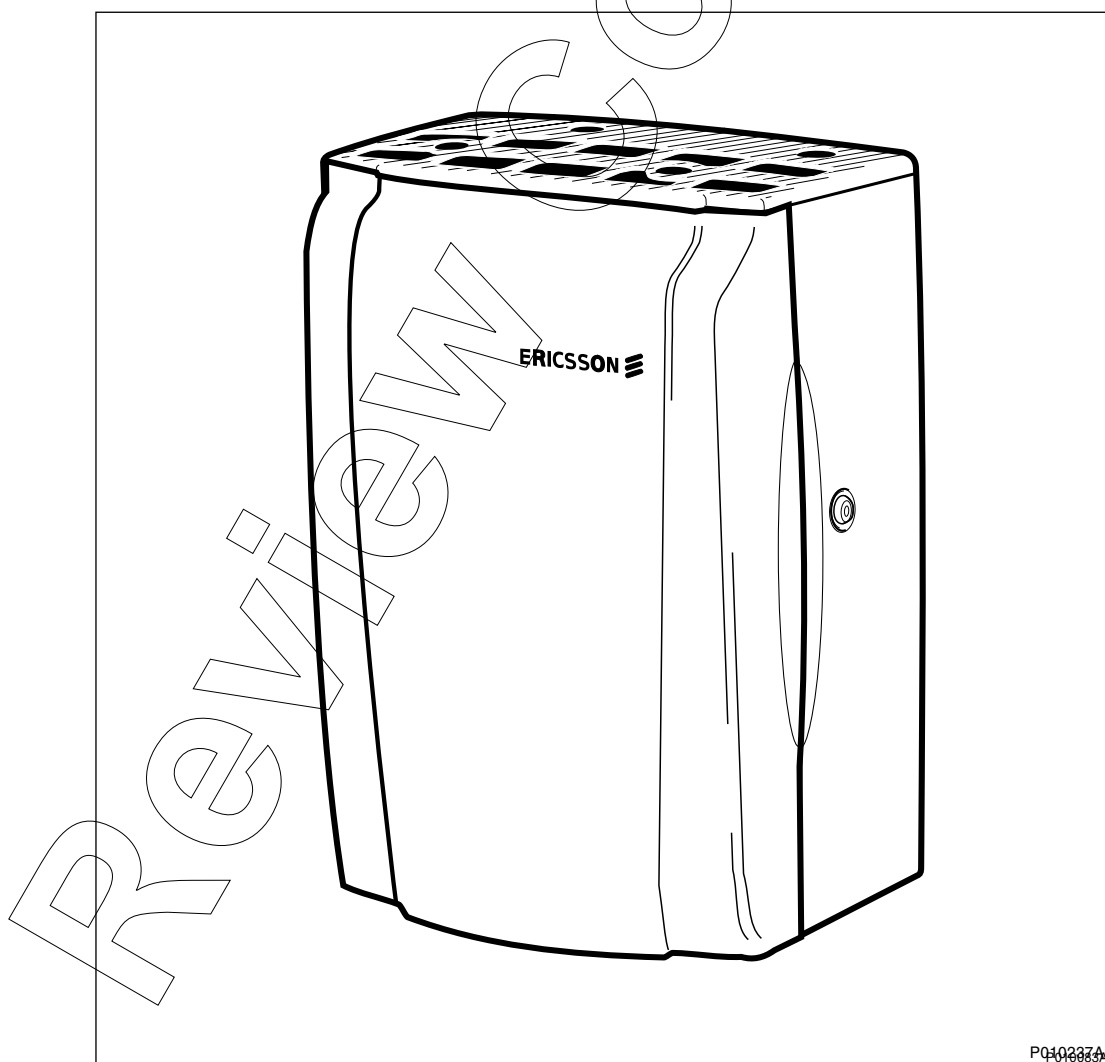


# RBS 2308

## Radio Base Station

### Product Description

The RBS 2308, a member of the RBS 2000 family, is a 4 TRX radio base station for indoor and outdoor applications.



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# 1 Product Overview

The RBS 2308 is an outdoor micro base station. It can be used for indoor or outdoor applications, with four transceiver (TRX) units. The cabinet can be mounted on walls, poles or masts.

The RBS 2308 supports CS-3, CS-4 and EGPRS.

Main applications for the RBS 2308 are:

- Hot spots, adding supplementary capacity
- Mega networks, providing micro-cell coverage
- Public meeting places, supplying additional capacity in dense areas
- Replacement of existing RBS 2302 sites where higher capacity or EDGE is required.

## 1.1 Main features

The RBS 2308 can support the following features:

- 4 TRXs
- Duplex filters
- EDGE (hardware prepared)
- External alarms
- Multidrop by-pass
- Positioning with LMU (Mode A only)
- Power supply for MINI LINK E Micro or LMU

## 1.2 Variants

The RBS 2308 is available for the following frequency:

- GSM 800

## 1.3 Optional Equipment

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

- Mast fixture set
- Material set wall bracket

## 2

## Dimensions

This section describes the RBS 2308 dimensions, weights and colour.

### Size and weight

The dimensions of the basic RBS 2308 cabinet are shown in the figure below.

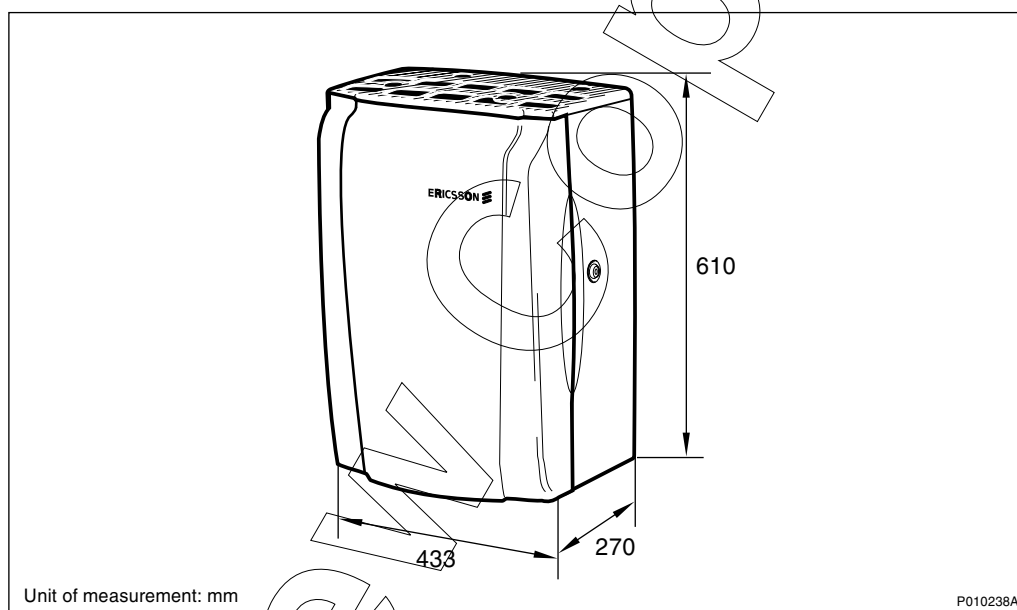


Figure 1 RBS 2308 dimensions

The weights of the RBS 2308 and of the major units to be handled are given in the table below.

Table 1 Weights of RBS 2308 and major units

Unit	Weight
IXU	9.5 kg
MBU	6.5 kg
RRU	23.5 kg
RXBP	1.6 kg
Sunshield	1.5 kg
Total	42.6 kg

### Colour

The RBS 2308 is available in grey (reference number NCS S2502-R).

### 3 Space requirements

For installation and maintenance, and proper cooling during operation, the space in front of the cabinet must be kept clear for a distance of 1000 mm, and there must be at least 500 mm of free space on the right side and 250 mm on the left. 300 mm free space is required above the cabinet, see figure below. No free space is needed at the back of the cabinet.

The distance between the cabinet and the nearest obstruction (floor, filing cabinet, another RBS, and so on) must be at least 500 mm.

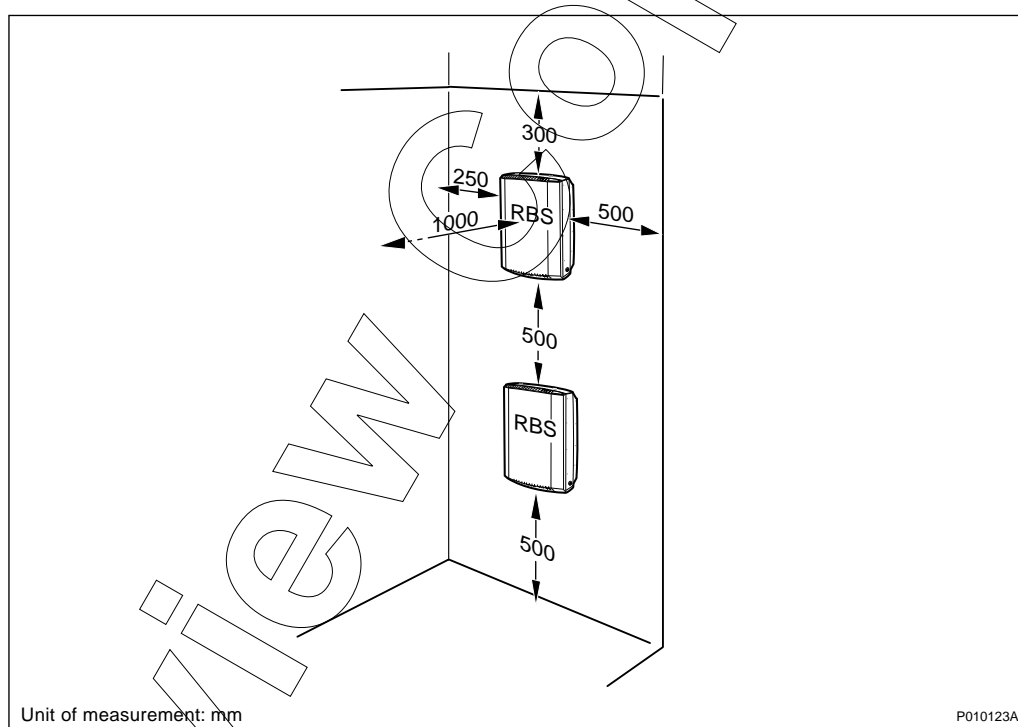


Figure 2 Space requirements

#### Mounting Base Holing Pattern

The mounting base of the RBS 2308 has the same holing pattern as that of the RBS 2302.

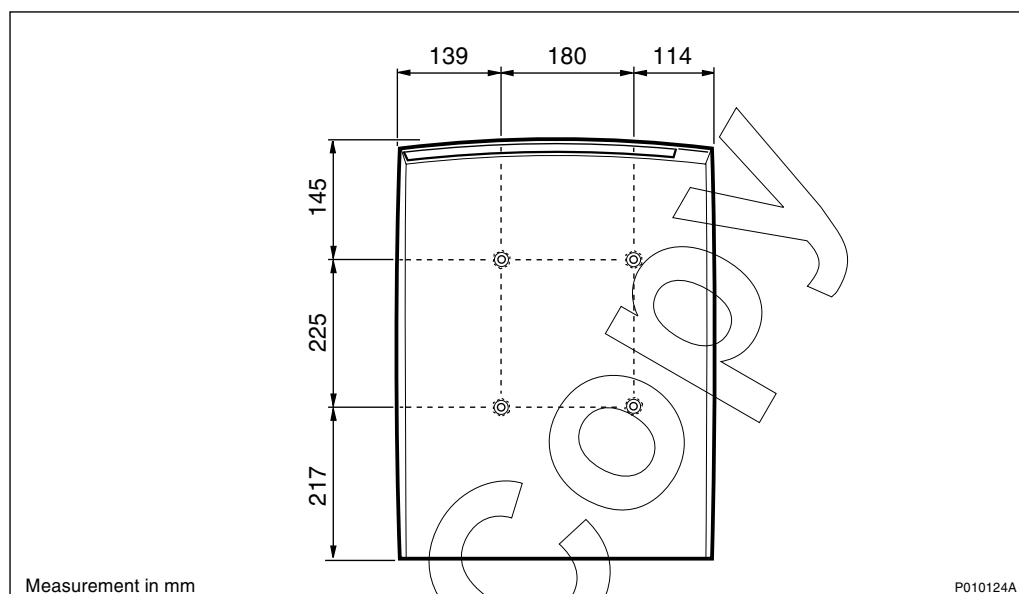


Figure 3 Base frame and installation frame holing pattern

## 4 Environment

This section provides an overview of the operating environment, environmental impact, and materials used in the RBS 2308.

### 4.1 Operating Environment

#### Climatic Requirements

Temperature limits for operation, transport, storage and handling of the RBS 2308 are given in the table below.

Table 2 Climatic requirements

Condition	Temperature	Relative humidity
Start-up and operation	-33° – +45°C	15 – 100%
Transport	-40° – +70°C	5 – 100%
Storage	-25° – +55°C	10 – 100%
Handling	-40° – +70°C	5 – 100%

### 4.2 Environmental Impact

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

## Heat Dissipation

Average heat loads of the RBS 2308 are given in the table below. The exact figures are dependent upon configuration, equipment and site-specific conditions.

*Table 3 Average heat load*

Operating condition	Average heat load
Without heating	315 W
With heating	1000 W

## Acoustic Dispersion

The RBS 2308 cabinet does not contribute to the acoustic noise of its surroundings.

### 4.3

## 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

## Package Material

The package material is recyclable.

## 5

## Hardware Units

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

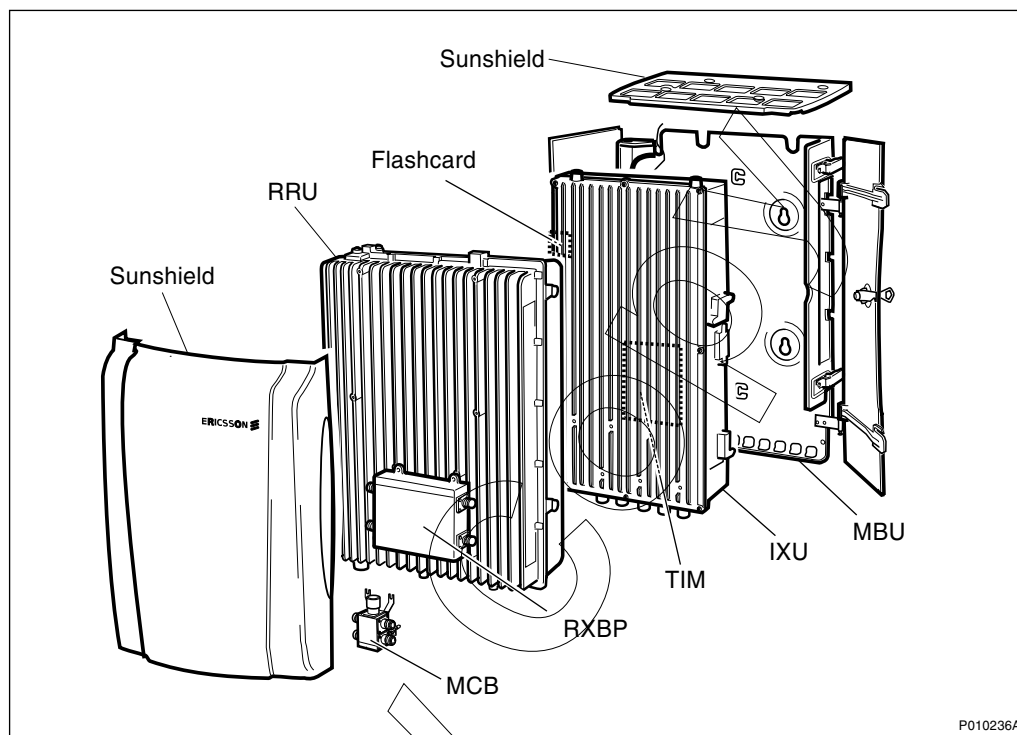


Figure 4 RBS 2308 overview

## 5.1

### Standard Hardware Units

This section briefly describes the standard hardware units required for operation.

#### Flash Memory Card

All loadable software and the IDB are stored on this unit. The flashcard is field replaceable and contains all information needed for configuring the RBS 2308 at site.

Number of units: 1

#### IXU – Interface and Switching Unit

The IXU is the central control unit for one RBS. All switching of traffic is performed in the IXU, as well as control of climate. The Flash Memory Card, the TIM, and most external interfaces are located on the IXU.

Number of units: 1

#### MBU – Mounting Base Unit

The MBU is the mechanical mounting interface for the RBS 2308. It also contains the interface for the main power supply, and provides surge and



transient protection for incoming lines. The circuit breaker for primary power and RRU power switch are located here.

Number of units: 1

### **Multicasting Box – MCB**

The multicasting box provides a single feeder interface for an external antenna/antenna system. The second antenna output on the multicasting box is normally connected to a 50  $\Omega$  load.

The MCB units can be connected to the RRU.

Number of units: 0 – 2

### **RRU – Remote Radio Unit**

The RRU contains the transceivers; it handles the combining and distributing functions for the RBS 2308. The RRU has integrated power supply and climate control.

Number of units: 1

### **RXBP**

The RXBP filters incoming RX signal, filtering out frequencies outside the RX spectrum in GSM 800.

The RXBP is connected to the front of the RRU.

Number of units: 0 – 1

### **Sunshields**

The sunshields reduce heat from direct solar radiation and provide a lockable cover to the RBS 2308.

Number of units: 1 top, 1 front and 2 side panels.

### **TIM – Transmission Interface Module**

The TIM provides an interface to various transmission standards. Currently only the T1 standard is supported.

Number of units: 1

## **5.2 Optional Hardware Units**

This section describes the RBS 2308 optional hardware units.

## 6 Interfaces

In this section, all external and internal connections are listed, as well as the test interface and the operator interface.

Most external connectors enter the cabinet through the bottom of the cabinet. The earthing connection is located on the top of the MBU. Test and operator interfaces are located on cabinet hardware units.

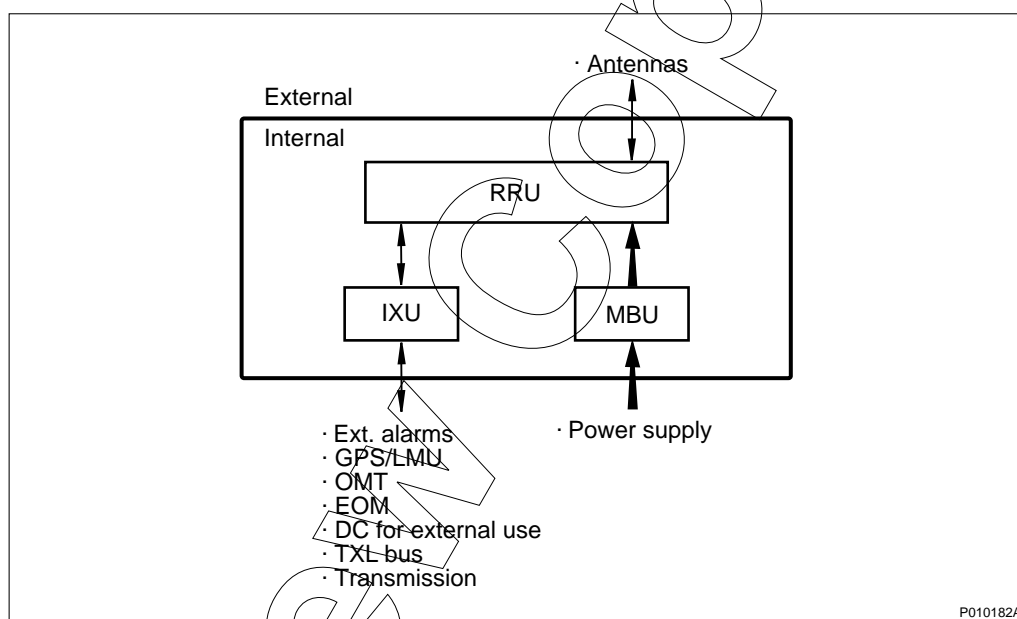


Figure 5 Internal and external interfaces

### 6.1 External connections

Most external connectors enter the cabinet through the bottom. The earthing connection is located on the top of the MBU, and the OMT connection is on the side of the IXU.

External connections for the RBS 2308 include the following:

- Antenna interface
- AC mains and earthing interfaces
- Transmission interface
- Alarm interface
- OMT interface
- GPS/LMU interfaces
- DC supply for LMU and MINI-LINK E Micro

## Antenna Connections on RRU

Depending on the specific configuration used, antenna connections may be made at the RRU, the RXBP, and the MCB. Antenna connections on the RRU are shown in the figure below.

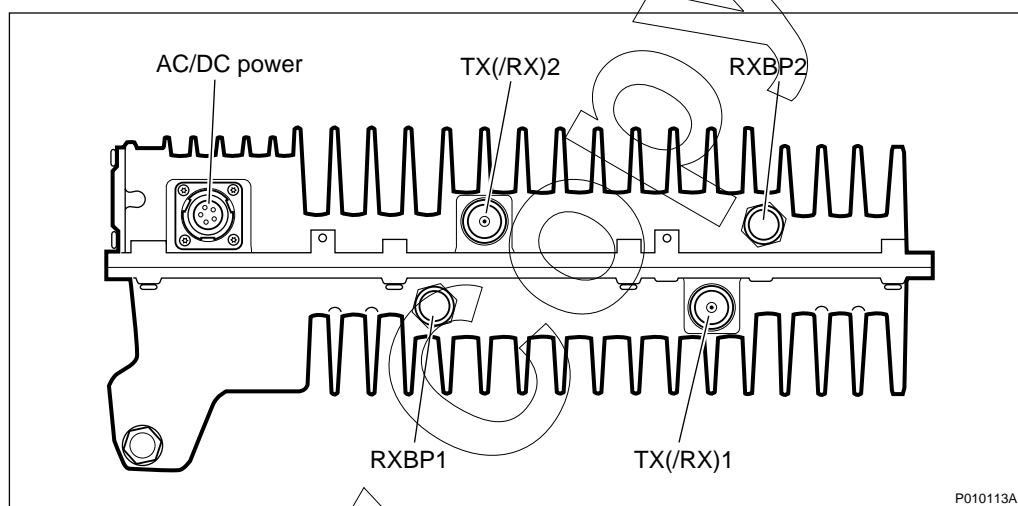


Figure 6 Antenna connections on RRU

Table 4 Antenna connection ports on RRU

Connector	Type of connector	Signal
TX(/RX)2	N connector (female)	TX/RX or TX
RXBP2	TNC	RX
RXBP1	TNC	RX
TX(/RX)1	N connector (female)	TX/RX or TX

## Antenna Connections on RXBP

For certain configurations, antenna connections are made at the optional RXBP. Antenna connectors on the RXBP are shown in the figure below.

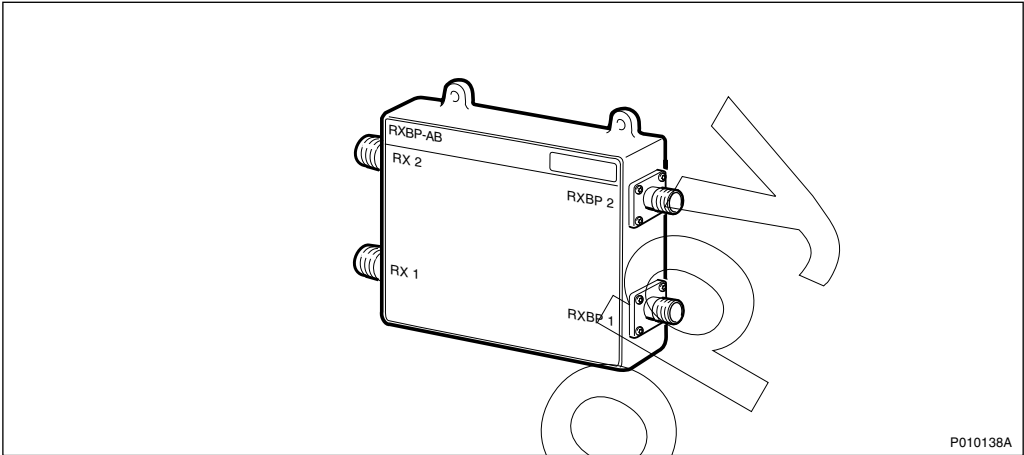


Figure 7 Antenna connection ports on RXBP

Table 5 Antenna connection ports on RXBP

Connector	Type of connector	Signal
RX2	N connector (male)	RX, from antenna
RXBP2	TNC (male)	RX, to RRU
RX1	N connector (male)	RX, from antenna
RXBP1	TNC (male)	RX, to RRU

Antenna Connections, MCB

For certain configurations, antenna connections are made at the optional MCB. Antenna connectors on the MCB are shown in the figure below.

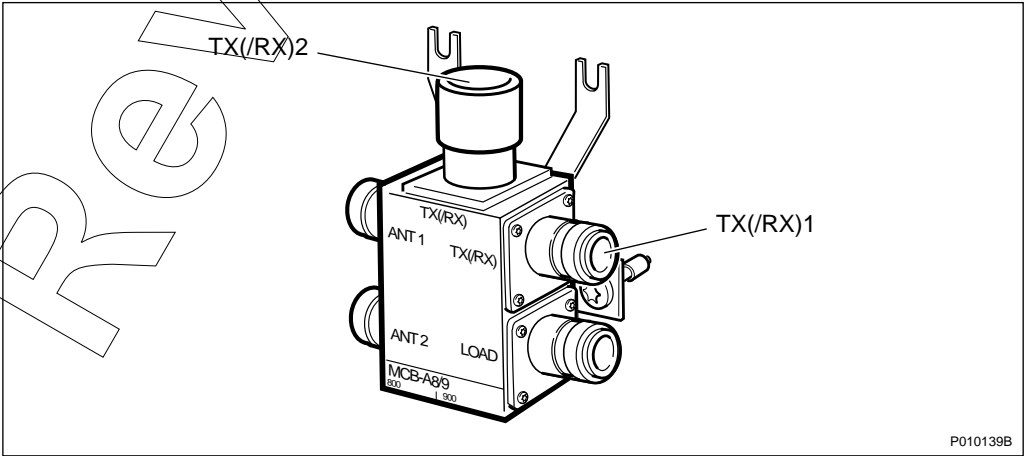


Figure 8 Antenna connection ports on MCB

Table 6 Antenna connection ports on MCB

Connector	Type of connector	Signal
TX/(RX) 2 <i>top</i>	N connector, female	TX from RRU
TX/(RX) 1 <i>side</i>	N connector, male	TX from RRU
Load	N connector, male	None
ANT 1	N connector, male	TX to antenna
ANT 2	N connector, male	TX to load

## Transmission

The RBS 2308 has four transmission ports, located in the IXU, see figure below.

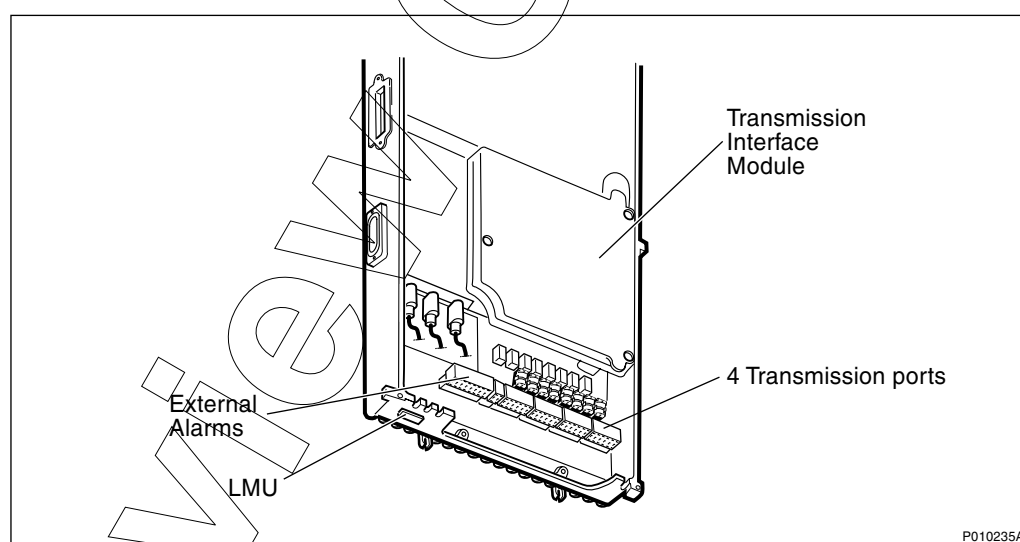


Figure 9 Location of T1 transmission ports in IXU

Table 7 Transmission connection parameters

Type of connector	6-pin, 2.5 mm <sup>2</sup> each (Quantity: 4)
Cable gland capacity	6 – 10 mm diameter (Quantity: 2)
Grounding	Transmission wire screen is grounded. Receive wire screen can be grounded.

## External Alarms

The RBS 2308 is equipped with four external alarms, located in the IXU, see Figure 9. Parameters are given in the table below.

*Table 8 External alarm connection parameters*

Type of connector	Terminals for 8 x 2.5 mm <sup>2</sup> (maximum) conductors
Cable gland capacity	6 – 10 mm diameter (Quantity: 2)
Number of alarms	4

## Earthing Connection

The earthing connection is an M8 screw terminal located on the top of the MBU.

## MINI-LINK / LMU Power Supply

The RBS 2308 can supply DC power to a MINI-LINK E Micro or to an LMU. This interface is located on the IXU. Parameters are given in the table below.

*Table 9 MINI-LINK / LMU power supply connection parameters*

Type of connector	Terminals for 2 x 2.5 mm <sup>2</sup> (maximum)
Cable gland capacity	6 – 10 mm diameter (Quantity: 1)

## Other External Connections

*Table 10 External connections*

Connection Location	Connection to	Type of connector
MBU	AC Mains connections	Screw terminal for 3 x 5.26 mm <sup>2</sup> (maximum) conductors; cable gland capacity 14 mm diameter.
IXU	GPS/LMU (synchronisation or positioning)	25-pin D-sub HD, female

## 6.2 OMT Interface

The OMT interface for RBS 2308 is located on the right side of the IXU. It is a 9-pin D-sub (female) connector.

## 6.3 Operator Interface

The Man-Machine Interface (MMI) in the RBS 2308 is comprised of indicators and buttons located on the hardware units in the cabinet.

## RRU

The following buttons are found on the RRU:

*Table 11 RRU buttons*

Button	Description
RRU Reset	Resets the RRU.
Local/Remote	Changes mode between local and remote

The following table describes the indicators found on the RRU, and their meaning when the indicator is lit.

*Table 12 RRU indicators*

Indicator	Colour	Description
Fault	Red	Fault detected on the RRU
Operational	Green	At least one TRX is operational in the RRU.
Local	Yellow	RRU is in local mode.
RF off	Yellow	No RF to antennas.
AC power on	Green	AC power supply OK.
DC power on	Green	DC power supply OK. <i>(For future use.)</i>
RRU temp.	Yellow	RRU internal temperature is out of range.

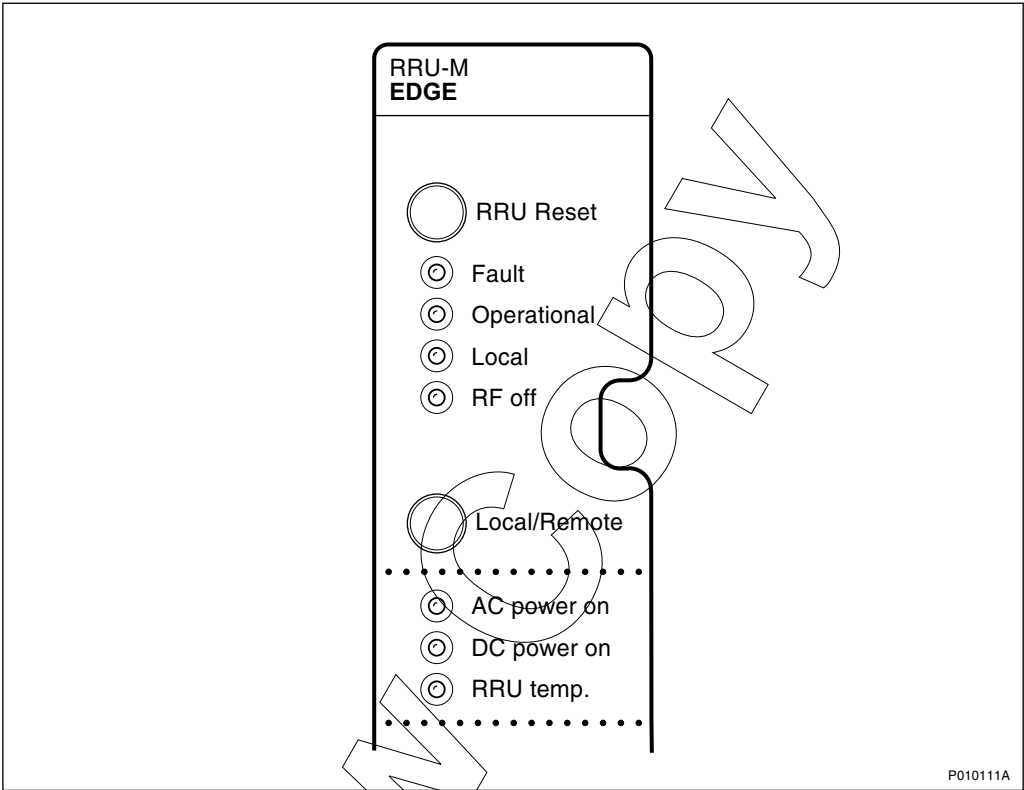


Figure 10 RRU Interface panel

IXU

The following buttons are found on the IXU:

Table 13 IXU buttons

Button	Description
IXU Reset	Resets the IXU and all subunits.
Local/Remote	Changes mode between local and remote

The following table describes the indicators found on the IXU, and their meaning when the indicator is lit.



Table 14 IXU indicators

Indicator	Colour	Description
Fault	Red	Fault detected on the IXU.
Operational	Green	IXU is operational.
Local	Yellow	IXU is in local mode.
RBS fault	Yellow	RBS fault detected.
External alarm	Yellow	One or several external alarms active in the RBS.
EOM bus fault	Yellow	(Not used.)
AC power on	Green	AC power supply OK.
DC power on	Green	DC power supply OK. (For future use.)
IXU temp.	Yellow	IXU internal temperature is out of range.
Transmission OK: Port A	Green	Transmission is OK – layer 1.
Transmission OK: Port B	Green	Transmission is OK – layer 1.
Transmission OK: Port C	Green	Transmission is OK – layer 1.
Transmission OK: Port D	Green	Transmission is OK – layer 1.

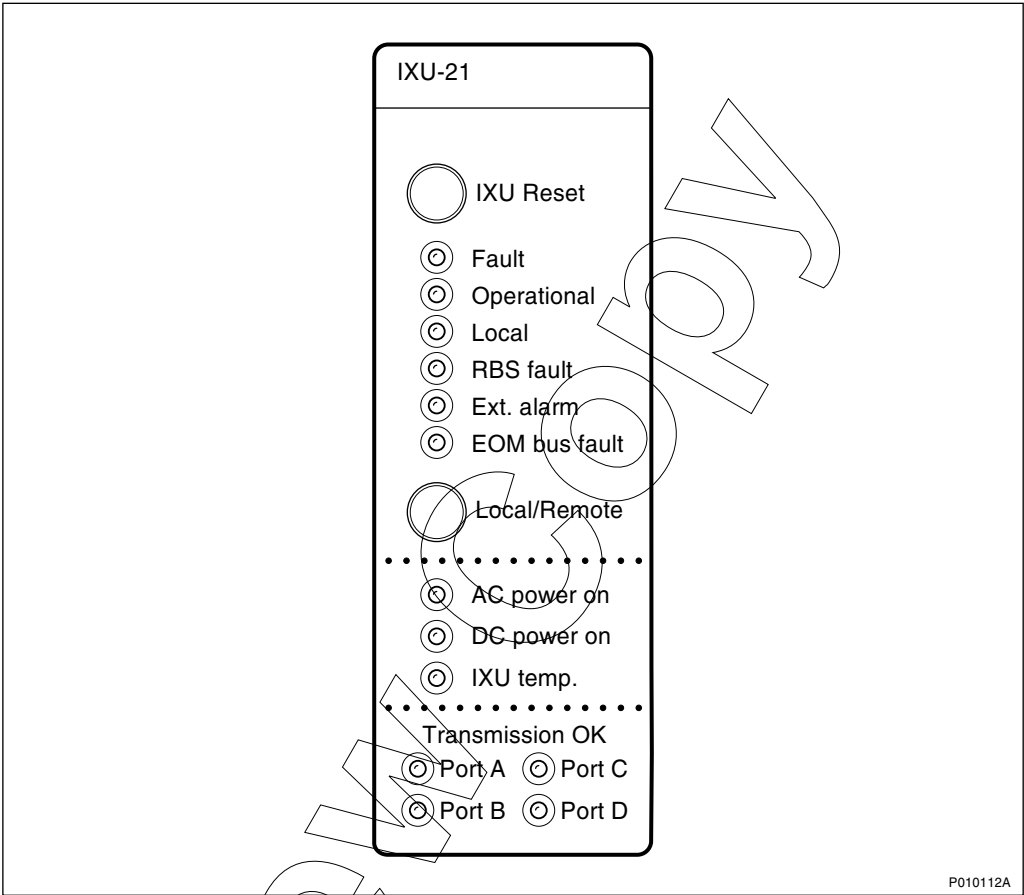


Figure 11 IXU interface panel

**MBU**

The following switches are located on the MBU:

Table 15 MBU switches

Switch	Description
AC on/off	AC power on or off to the RBS
DC on/off	DC power on or off to the RBS <i>(For future use.)</i>
RRU on/off	AC/DC Power on/off to the RRU

**7**

**Power System**

This section provides information on the power system of the RBS 2308.

The main characteristics of the RBS 2308 power supply are:

- Only alternating current (AC) mains supply is used.

- AC Mains voltage range: 100 – 127 V AC

## 7.1

### Power Supply

#### AC Mains Supply Voltage

Single-phase AC is used, voltage range 100 – 127 V AC. Both 50 MHz and 60 MHz nominal frequencies may be used.

Table 16 Power parameters

Parameter	50 Hz Nominal Frequency	60 Hz Nominal Frequency
Nominal voltage	100 – 127 V AC	100 – 127 V AC
Operating voltage	90 – 140 V AC	90 – 140 V AC
Operating frequency	45 – 55 Hz	55 – 65 Hz
Maximum inrush current	50 A for 10 ms (typical duration)	60 A for 10 ms (typical duration)
Short circuit current	< 5 kA	< 5 kA

#### Mains Fuses

The following fuses are recommended for 100 – 127 V AC mains power supply.

Table 17 Mains fuses recommendation

Cabinet Orientation	Recommended Fuse Rating
Vertical	16 A slow blow
Horizontal	20 A slow blow

## 7.2

### Output Power

The RBS can supply the MINI LINK E Micro or LMU with power according to the table below:

Table 18 Output power characteristics

Voltage range	+48 V DC
Connector type	Terminals 2 x maximum 2.5 mm <sup>2</sup>
Cable gland capacity	6 - 10 mm diameter (Quantity: 1)

### 7.3 Power Consumption

The power consumed by the RBS 2308 in both normal operation and with heating is given in the table below.

*Table 19 Power consumption, basic cabinet*

Operational condition	Nominal power consumption
Normal operation (no heating)	363 W
Start-up of heating	3208 W
Continual heating	1003 W

Power can also be supplied by the RBS 2308 to various external equipment, for example an LMU. The additional power consumed in supplying external equipment is given in the table below.

*Table 20 Additional power consumption for various options*

Option	Additional power consumption (nominal values)
MINI-LINK	? W
LMU	? W

## 8 Transmission

The RBS 2308 supports the T1 transmission standard. One TIM can support DS1 T1 for both long haul and short haul.

### Multidrop

Up to ten RBSs can be cascaded using multidrop.

## 9 External Alarms

The RBS 2308 supports a maximum of 4 external alarms, located in the IXU. Alarms can be defined as breaking or closing.

## 10 Standards, Regulations and Dependability

In this section a brief overview over standards, type approval and electromagnetic compatibility are stated.

## 10.1 Safety Standards

In accordance to the market requirements, the RBS 2308 complies with the following product safety standards:

- 73/23/EEC Low voltage directive
- IP 55 according to IEC 60529
- EN 60950 / IEC 60950
- EN 60215 / IEC 60215
- UL 1950, harmonised with CSA 22.2 No. 950
- Enclosure type 3R class according to UL 50 and CSA 22.2 No. 94

## 10.2 Other Standards and Regulations

### Marking

The product is marked with signs to show compliance with product safety standards.

### Type Approval Standards

The RBS 2308 complies with the European Community and the North America market requirements regarding radio performance. The product has the CE and FCC signs to show compliance to the legal requirements in respective region.

### Electromagnetic Compatibility (EMC)

The RBS 2308 complies with the European Community and the North America market requirements regarding EMC. The product has the CE and FCC signs to show compliance to the legal requirements in respective region.

### Dependability

The RBS 2308 is designed for a technical lifetime of 20 years (24-hour operation) at an average ambient temperature of +25°C. Certain components of the RBS 2308 may have a shorter lifetime.

### Vandal Resistance

The RBS 2308 fulfils Ericsson's requirements for vandal resistance.

Review Copy

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Due to continued progress in methodology, design and manufacturing,  
the contents of this document are subject to change without notice.

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