

# sysmoBTS 1020 data sheet

**sysmocom**

systems for mobile communications GmbH



## Introducing sysmoBTS 1020

The sysmoBTS 1020 is a new, low-power, small-formfactor IP-backhaul GSM BTS for outdoor applications. It offers **2W RF power** at supreme cost efficiency and is suitable for a wide range of applications, including

- Rural cellular networks in lowest-ARPU regions
- Rapidly deployable GSM networks
- Private GSM networks (PBX style use)
- Remote area GSM deployments, utilizing any IP-based satellite back-haul service
- Offshore wind farms, oil rigs
- Onboard coverage on maritime vessels (ferries, cruise ships, commercial vessels)

The IP65 rated sysmoBTS 1020 is intended to be mounted directly to the antenna pole in close proximity of the antenna.



This keeps RF cables short and avoids the losses associated with long coaxial cables. Instead of running coaxial cables up the pole, you now simply only need CAT5 cables for Ethernet and PoE (Power over Ethernet).

Benefit from sysmocom's world-class experience in all areas of cellular networks from RAN to core network, permitting flexible integration of other network elements like BSC into the BTS itself.

In addition to operating as a classic BTS in an existing carrier network all sysmoBTS products permit you to run a completely autonomous small GSM network from within the BTS: The NITB (Network In The Box). No external BSC/MSC/HLR/VLR required!

## Beyond the BTS

sysmocom not only offers the sysmoBTS base station product line for indoor and outdoor applications, but a variety of other products and services, such as

- **sysmoNITB 2G starterkit** complete ready to run 2G solution for lab testing and training
- **sysmoNITB 3.5G starterkit LE** sysmocom's first ready to run 3.5G solution
- **sysmoBSC** Base Station Controller, supporting Abis/IP as well as legacy E1 interfaces
- **sysmoNITB** autonomous self-contained GSM network
- **sysmoSIM** SIM cards, pre-programmed and with custom printing
- **sysmoBTS** range from 1TRX 0.2W to 2TRX 2x10W
- extensive portfolio of **support contracts** for all sysmocom Products
- **training services** for installation, network deployment, operation
- **vendor-agnostic integration** and inter-operation with other vendor RAN and Core Network products
- variety of sectorized and omni-directional **antennas** as well as **RF cabling** and **accessories**

## Custom-tailored GSM solutions

sysmocom is not just another RAN vendor with a fixed product portfolio. All our products are based on Open Source software components, permitting customization both by sysmocom as well as the customer.

Access to the source code is key in enabling our customers to create products and services outside the constraints of existing, standardized GSM protocols, interfaces or procedures. Any aspect of our products can be modified according to customer needs.

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## Mechanical / Electrical specification

<b>Dimensions of enclosure (W x H x D)</b>	300 x 220 x 55 mm (measurements excluding pole/wall mount) Casted aluminium enclosure with UV resistant paint
<b>Weight</b>	2 kg
<b>Mounting</b>	included wall-mount and pole-mount clamp
<b>Protection Rating</b>	IP65 (dust tight, waterproof) outdoor enclosure for wall or pole mount
<b>Temperature Range</b>	Operating temperature: -40 °C to 55 °C Storage temperature: -40 °C to 70 °C
<b>RF Input (N female)</b>	<ul style="list-style-type: none"> <li>dual-band GSM 850/900 or 1800/1900 uplink band</li> <li>Sensitivity: -109 dBm (exceeding 3GPP TS 05.05 pico BTS requirements)</li> </ul>
<b>RF Output (N female)</b>	<ul style="list-style-type: none"> <li>dual-band GSM 850/900 or 1800/1900 downlink band</li> <li>Max. total output power: 33 dBm, adjustable in 2dB steps</li> </ul>
<b>GPS Input</b>	N female connector towards GPS antenna (for GPS-disciplined oscillator)
<b>CPU / SoC</b>	TI Davinci (ARM926 @ 405 MHz + DSP @ 804 MHz)
<b>Input Voltage</b>	36-60 V (DC). direct or via 803.3at PoE; power consumption: 20W (typ.)
<b>Cooling</b>	Passive
<b>Internal Memory</b>	128 Mbyte SLC NAND Flash, 128 Mbyte DDR2 SDRAM, optional microSD
<b>Communications Interface</b>	RJ45 Ethernet (100-Base-Tx) port with 802.3at PoE
<b>Approvals</b>	Currently no CE approval plans, sale only outside the EU

## Software / Logical specification

<b>Number of Transceivers</b>	1 TRX / 8 timeslots
<b>Supported timeslot configurations</b>	CCCH, CCCH+SDCCH/4, SDCCH/8, TCH/F, TCH/H, PDTCH
<b>Back-haul (Signaling)</b>	A-bis according to TS 08.58 and TS 12.21, encapsulated over TCP/IP
<b>Back-haul (voice)</b>	RTP/UDP/IP with FR/EFR/AMR payload according to IETF and ETSI specs
<b>Ciphering</b>	A5/1, A5/2 and A5/3
<b>GPRS/EDGE</b>	GPRS-only PCU with Gb-over-IP interface
<b>Max. concurrent calls</b>	14 (TCH/H on 7 timeslots)
<b>Max. simultaneous SMS</b>	60 (7*SDCCH/8 + 1*SDCCH/4)
<b>Operating System</b>	Embedded Linux (Poky based)

## Available Options / Configurations

### Hardware Options / Accessories

- Internal uSD Card for extended memory
- External IP65 Antenna Duplexer
- GPS Antenna
- External IP65 Power Supply
- PoE injector
- G.SHDSL modem for 2-wire copper back-haul

### Software Options

- BTS-only (A-bis/IP interface)
- Integrated BSC (A/IP interface)
- NITB: Fully autonomous GSM PBX
- GPRS PCU with Gb interface
- SDK for customer-specific applications on BTS

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