

GSM-UMTS CELLULAR TELEPHONE LOCAL REPEATERS

BT20 GSM 900MHz band

BT40 GSM 1800MHz band

BT45 videotelephony UMTS band

NEWS! EXPANDING SYSTEM FOR MULTI-AREAS

NEWS! BT10 LOW COST REPEATER

Move the signal where you want!

European test approval CE 0523
FREE USE
PATENT PENDING

THE ONLY ONES VERY RELIABLE
REAL OPERATING USED AND
APPRECIATED IN OVER THAN
40 COUNTRIES IN THE WORLD



MICROSET®

EDITION 2010

GSM/GPRS 900MHz

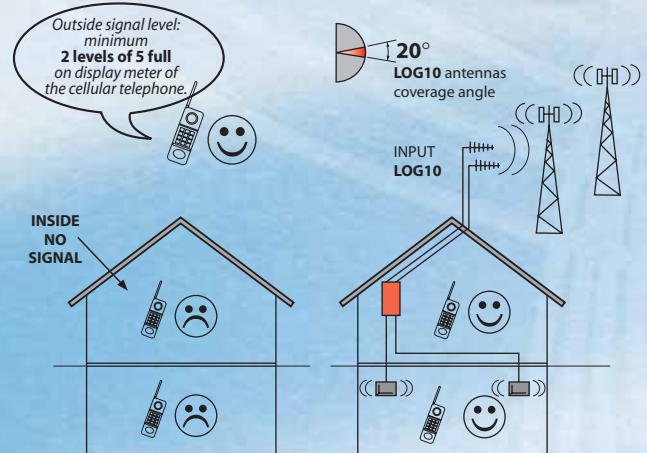
BT20-STANDARD

HIGH GAIN - SINGLE PROVIDER VERSION



**BT20-STANDARD VERSION
OUTDOOR-INDOOR INSTALLATION**

- Includes:
- Two input high gain directional antennas mod. LOG10
 - Two indoor high gain panel antennas



The **BT20-Standard** version is recommended when the outside signal is low and it should be reached the maximum coverage with only one provider, on GSM/GPRS 900 band.

It is possible repeating more than one provider if the operator cells are placed in the same direction. Typical indoor coverage: 5000-10000 square meters (without obstacles and with good input signal level). Available optionals: coax cable extensions, expanding kit splitter for multi-areas coverage.

PATENT PENDING – TEST APPROVAL – FREE USE

900MHz REPEATERS – AVAILABLE VERSIONS

BT20-OM

900MHz MULTI OPERATOR VERSION



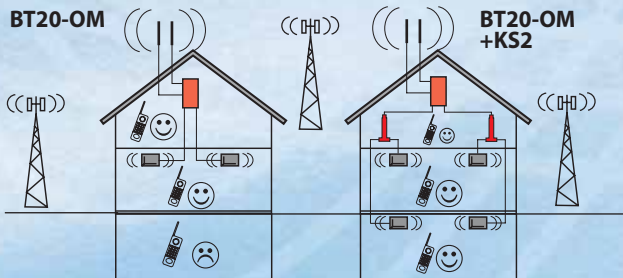
BT20-OM OMNIDIRECTIONAL VERSION MULTIOPERATORS, OUTDOOR-INDOOR INSTALLATION

- Includes:
- Two input omnidirectional antennas mod. MC900 to coverage all providers cells placed in different position
 - Two indoor high gain panel antennas

Outside signal level: minimum 3-4 levels of 5 full on display meter of the cellular telephone.



360° MC900 antennas coverage angle



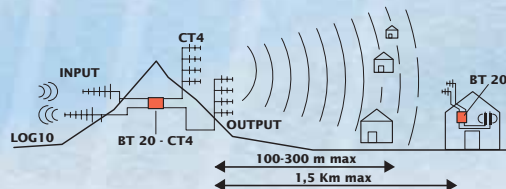
The **BT20-OM** version is useful for outdoor-indoor installations where it is requested to repeat more than one operator with cells located in different positions.

Where only one repeater **BT20-OM** could not coverage all the requested area or several floors, use in addition the expanding KIT SPLITTER, as in example KS2-2 ways.

BT20-CT4 GSM 900 MHz

OUTDOOR INSTALLATION

The **BT20-CT4** version is useful for OUTDOOR installation in hill areas, small valleys, countryside, resorts. It is required almost a good signal level on input side and good shield condition between input and output – otherwise the repeater cannot operate and generates possible interferences on operator traffic. After installation verify the correct operating with spectrum analyzer.

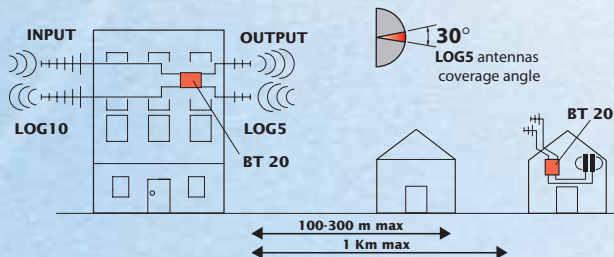


BT20-LOG5 GSM 900 MHz

The **BT20-LOG5** version is useful for OUTDOOR installation where it is requested on output side a narrow coverage angle for a house where the signal should be reached by a second BT20 outdoor-indoor version. It is required the observation of the same conditions and final operative test as for BT20-CT4.

It includes:

- Two input high gain directional antennas LOG10
- Two output directional antennas LOG5 coverage angle 30° around



GSM-GPRS 900 MHz "LOW COST"

FIELD EXTENDER/REPEATER Mod. BT10

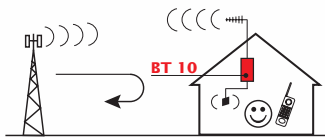
GOOD PERFORMANCES, GOOD RELIABILITY



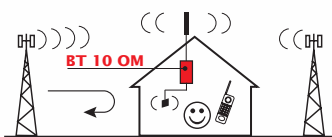
BT10 STANDARD
SINGLE PROVIDER



BT10-OM
MULTIOPERATORS



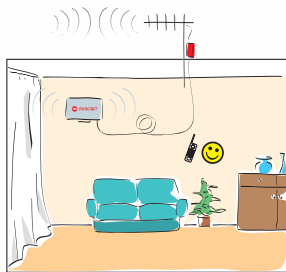
INDOOR COVERAGE 100-200m²



INDOOR COVERAGE 80-150m²

The **BT10** is a field extender repeater "LOW COST" for small applications (indoor coverage 80-200m²) but efficient and very reliable.

It works on 900MHz, wide band system, and it can support typically 5 simultaneous communications, extending the GSM/GPRS signal from outside (roof) where present with good level, to inside little building where otherwise the signal is low or absent.



APPLICATIONS: houses, little offices, shops, restaurants.

Delivery kit including all the main parts for easy installation:

- 1 roof antenna with 10mt cable and connectors assembled
- 1 indoor panel antenna with 10mt cable and connectors assembled
- 1 amplifier
- 1 power supply

TECHNICAL CHARACTERISTICS

- Down link frequency: 935-960MHz
- Up link frequency : 890-915MHz
- Gain : 50dB
- Max Output level: +10dBm
- Power: 230VAC
- Compliance to European Directive 1999/5/EC (CE 0523!)
- Microset patent - FREE USE.



DCS/GPRS 1800MHz

1800MHz REPEATER Mod. BT 40

BT40



The **BT40** is a **1800MHz** GSM/DCS telephone local repeater. It is the BT20 technological evolution – useful to extend or increase the provider coverage in buildings where the outside signal is good but the inside signal is low or absent.

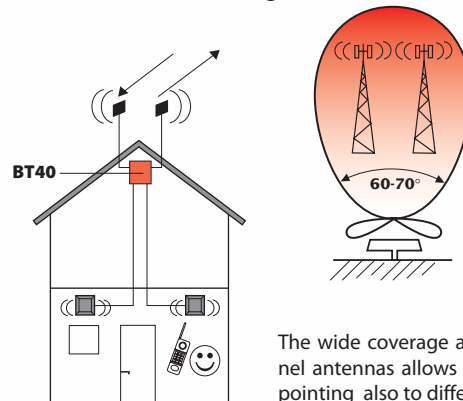
It is also possible installing **BT40** in open areas, taking care of the shielded conditions between output and input antennas to avoid interferences and poor service.

BT40 is a mono-band system: check the operative band of the providers in your country.

BT40 is a wide band system: it accepts all providers signal, but the different provider cells should be placed into the angle coverage (60°-70°) of the outside directional panel antennas.

With outside good signal and favourable field conditions, coverage should be up to 5.000-10.000 square meters (50.000-100.000 square feet).

Available optionals: coax cable extensions, expanding kit splitter for multi-areas coverage.



BT40 and BT45
panel antennas
coverage angle.

The wide coverage angle of **BT40-45** panel antennas allows easy installation and pointing also to different provider cells.

UMTS-3G 2100MHz

UMTS REPEATER Mod. BT 45

BT45



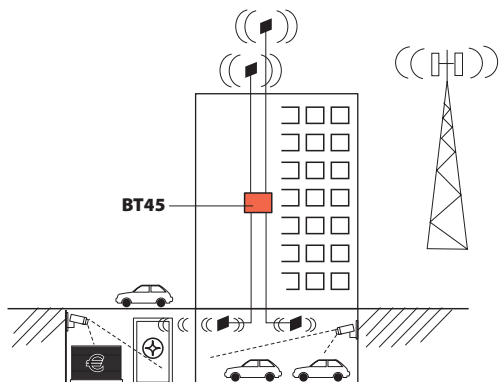
The **BT45** is a UMTS-3G local repeater/field extender useful to extend the video and internet data transmission from OUTSIDE (where the UMTS signal is present with good level) to INSIDE the buildings where the signal is low or absent.

The **BT45** is a wide band system and it can support efficiently the UMTS signal of several operators if their cells are placed into the coverage angle 60°-70° of the external panel antennas, and the signal coming without reflections.

Typical indoor coverage: 5000-10000 square meters (without obstacles and with good input signal level).

Applications: fast internet on wide-band, safety and surveillance systems.

Available optionals: coax cable extensions, kit splitter for expanding the indoor operative coverage.



Important Note: The **BT45** is operative ONLY on 2100MHz band (mono-band system): it supports the video-signal and fast internet data traffic on the band UMTS/HSDPA; the voice traffic (phone) usually is on the band GSM 900MHz (**BT20**) or 1800MHz (**BT40**).

USE AND APPLICATIONS

The local repeater/field extender kits here presented are reliable equipments, with high efficiency and excellent operating – used and appreciated in more than 40 Countries in the world. They are the successful high technology result of MICROSET® research & development; International Patent Pending – MICROSET® exclusivity since 1995. All the others on the market are bad attempts, not reliable! Pay attention to the difference!

USE

The typical application of MICROSET® local telephone repeaters are for buildings where the outside signal is good and the inside signal is low or absent.

IMPORTANT – SAFETY

The use of MICROSET® repeaters preserves body healthy because decreases drastically the output power of hand-set telephone, avoiding dangerous expositions to electromagnetic fields (MICROSET® patent), and saving also batteries.

CAPACITY CHANNELS – ETSI TEST APPROVAL

BT20 basic model has European test approval for 10 communications also from different operators; but it is a wide band system so that, with favourable signal and environmental conditions, it can support rather unlimited number of communications.

TYPICAL APPLICATIONS

- Hotels - Shopping centres - Resort - Offices - Small valleys
- Restaurants - Factories - Houses - Country sides etc.

OPERATING FIELD COVERAGE : HIGH EFFICIENCY

With good level of outside signal it is possible to reach for inside coverage up to 10.000 square meters (100.000 square feet) on 900MHz band.

BT20-BT40-BT45 DELIVERY KIT

Each repeater kit includes all main installation hardware (see pictures):

- 2 input antennas
- Mast preamplifier
- Main amplifier
- 2 output antennas
- Power supply 230V 50Hz

All antennas are delivered with 10mt. coax cable with assembled TNC connectors.

It is possible to extend the length of antennas cables by extensions, available optional extra.

CABLES EXTENSIONS – BT20-BT40-BT45 OPTIONALS

Very low loss coaxial cable, 11mm foam type with double shield with assembled TNC connectors male and female.

- Mod. **PR10** 10mt – insertion loss 1.5dB at 950MHz
- Mod. **PR20** 20mt – insertion loss 3.0dB at 950MHz
- Mod. **PR33** 33mt – insertion loss 4.5dB at 950MHz

FREQUENCY BAND – AMPLIFIER GAIN

	BT20 900MHz band	BT40 1800MHz band	BT45 UMTS band
DOWN LINK:	935-960MHz	1805-1880MHz	2110-2170MHz
	gain 90dB typ.	gain 85dB typ.	gain 80dB typ.
UP LINK:	890-915MHz	1710-1785MHz	1920-1980MHz
	gain 60dB typ.	gain 58dB typ.	gain 54dB typ.

COMMON CHARACTERISTICS

INPUT LEVEL:	- 55dBm max
INTERMODULATION:	better than -36dBm
SPURIOUS:	-55dBm span 2MHz bw 30kHz
HARMONICS:	better than -36dBm up to 12,5GHz
OUTPUT LEVEL:	+10dBm ±2dB +20dBm out of European Community
OPERATING:	linear class A
GAIN LINEARITY:	±2dB at 50dB variation
CAPACITY:	10 communications recommended 20-30 communications with good signal 2 communications with low signal
OPERATING FIELD COVERAGE	5000-10000 square meters / 50.000-100.000 square feet with favourable field conditions
INPUT-OUTPUT IMPEDANCE:	50Ω
CONNECTORS:	TNC female
POWER:	+10VDC (limit 9-14VDC) 0,4A BT20 0,6A BT40-45
ENVIRONMENTAL:	-15° to 45°C (limit -20° +50°C)
HUMIDITY:	up to 85% not condensate
INSTALLATION:	indoor (main amplifier)
STANDARDS:	EN 60950-2000 ETSI EN 300609-4 ETSI EN 301489-1
TEST APPROVAL CE 0523 (!)	

1999/5/EC EUROPEAN STANDARD APPROVAL

INTERNATIONAL PATENT PENDING
ALL RIGHTS RESERVED

CHECK THE OPERATIVE BAND OF THE PROVIDERS IN YOUR COUNTRY!

EXPANDING KIT SPLITTER FOR MULTI-FLOOR BUILDINGS

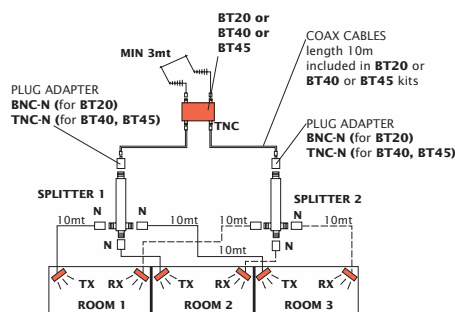
KIT SPLITTER FOR VERTICAL EXTENSION

The **NEW** expanding kits splitter **KS 2-3-4-5 ways**, **VERTICAL configuration**, allow to cover more floors in multi-flat buildings, separated and shielded rooms or areas, using only one repeater kit **BT20**, **BT40** or **BT45** (depending on the required operative frequency); the cost of system decreases and, overall, there are necessary only two roof antennas.

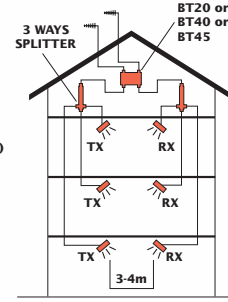
AVAILABLE MODELS

MODEL	DESCRIPTION
KS 2	Kit Splitter 2 WAYS
KS 3	Kit Splitter 3 WAYS
KS 4	Kit Splitter 4 WAYS
KS 5	Kit Splitter 5 WAYS

INSTALLATION EXAMPLE



Every **kit splitter for vertical extension KS** includes all the parts necessary to installation (coax cables with connectors assembled, adapters, additional antennas, splitters); these parts are in addition to the repeater **BT20**, **BT40** or **BT45** delivery kit.



Kit splitter 3 ways Mod. KS3

EXTENSION CABLES FOR ANTENNAS AND SPLITTERS

Available two versions of very low loss extension coax cables, Ø11mm, foam type double shield.

The **PR** version has TNC male-female assembled connectors and it's useful to extend the antenna cables both on input than on output side of main amplifier **BT20/BT40/BT45**, where it's used TNC plugs.

The **PRS** version with N male/female connectors assembled is useful to extend **KS/KSP** splitter cables, where it's used N plugs. Series connection facility to reach the required length.

VERY IMPORTANT: Using low quality coax cables, the repeater loses efficiency!

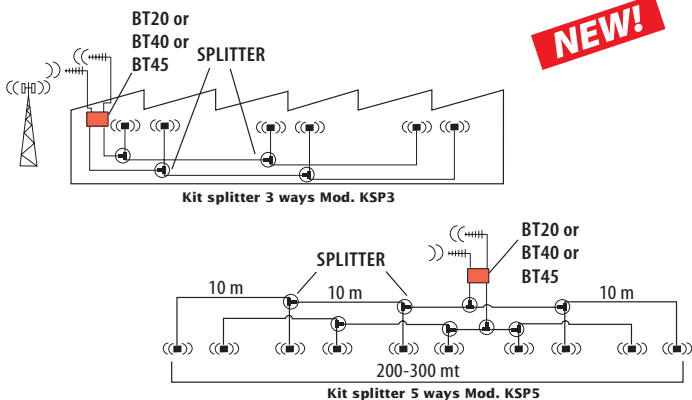
MODEL	LENGTH (mt)	CONNECTORS	INSERTION LOSS	
			900MHz	2000MHz
PR 10	10	TNC M/F	1.5dB	2.0dB
PR 20	20	TNC M/F	3.0dB	4.0dB
PR 33	33	TNC M/F	4.5dB	6.0dB
PRS 10	10	N M/F	1.5dB	2.0dB
PRS 20	20	N M/F	3.0dB	4.0dB
PRS 33	33	N M/F	4.5dB	6.0dB

AREAS COVERAGE FOR BT20-BT40-BT45

KIT SPLITTER FOR HORIZONTAL EXTENSION

The **NEW** kit splitter for **HORIZONTAL** extension **KSP** are useful when it is required wide indoor coverage, like car-parking and large factory where only one repeater **BT20**, **BT40** or **BT45** should result not enough. The cascade system permits an easy installation: every **KSP** kit includes all the necessary installation parts (coax cables with connectors assembled, adapters, additional antennas, splitters).

MODEL	DESCRIPTION
KSP 3	Kit splitter 3 WAYS, horizontal extension
KSP 4	Kit splitter 4 WAYS, horizontal extension
KSP 5	Kit splitter 5 WAYS, horizontal extension



NEW!

MKB KIT FOR CONTINUOUS SERVICE DURING MAINS ABSENCE



continuous service of **BT 20** for 15 hours and **BT 40-45** for 10 hours long.

Mod. MKB 7

Uninterruptible power supply system; it includes:

- 12V 7.5Ah Battery
- Connection cable

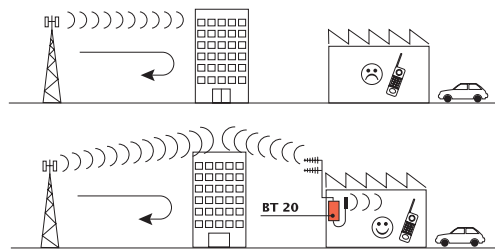
Used with **ML 12B** power supply / battery charger (delivered separately), it permits to obtain a D.C. UPS system for the

Mod. MKB 15

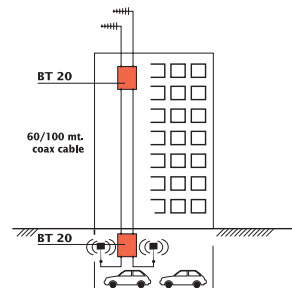
Kit similar to **MBK 7** but with autonomy of:

- 30 hours for **BT 20**
- 20-25 hours for **BT 40-45**

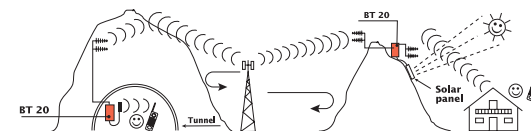
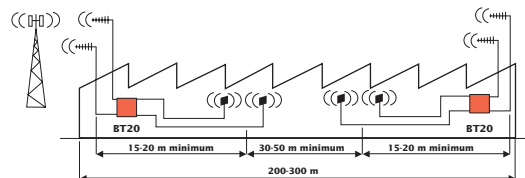
TYPICAL INSTALLATIONS



**TEST APPROVAL
FREE USE**



When the distance between input and output antennas is more than 80-100mt and the signal is very low, you should use two cascade BT20 main amplifiers.



Installation examples useful also for mod. **BT40** and **BT45**

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