



Application

- TETRA / TETRAPOL 400 MHz coverage enhancement
- Safety networks
- Confined areas difficult to cover

Key Features

- Up to 8 active antennas
- Up to +10dBm output power for each antenna
- Extension with optical fiber
- Gain Limiter
- Outdoor case IP 65
- IP Monitoring by modem GPRS, GSM-R or TETRA

Benefits

- Optimized coverage
- Flexible engineering

Contact us

Distributore per l'Italia :

PROTEL SAS
Via Magellano 3 A/B6
Cesano Boscone (MI)
Tel.: 02 48 60 02 65

Solution for Indoor TETRA coverage

AIR Repeater™ TETRA 400 RF-RF with Boosters



To ensure TETRA coverage everywhere

The "AIR Repeater™ TETRA / TETRAPOL 400 RF-RF with Boosters" ensures continuity of service for TETRA or TETRAPOL radio mobile network in the infrastructures inadequately covered or not, such as tunnels, industrial buildings or warehouse, shopping centers, hospitals, subway parking, etc...

It consists of a master repeater, a divider 1 to 4 and up to 8 RF boosters remotely supplied and scattered throughout the infrastructure to cover. Each booster can emit up to +10dBm RF power to one or several local antennas or to radiating cables.

A remote repeater can be added with an optical link from the master repeater to extend the network into some rooms or places far from the antenna or the main infrastructure to cover, like a subway parking of a high office building.

The flexible design enables an entirely appropriate coverage in infrastructure by focusing on small points of transmission and taking into account the architectural features that create micro-shadow areas that are particularly difficult to cover.

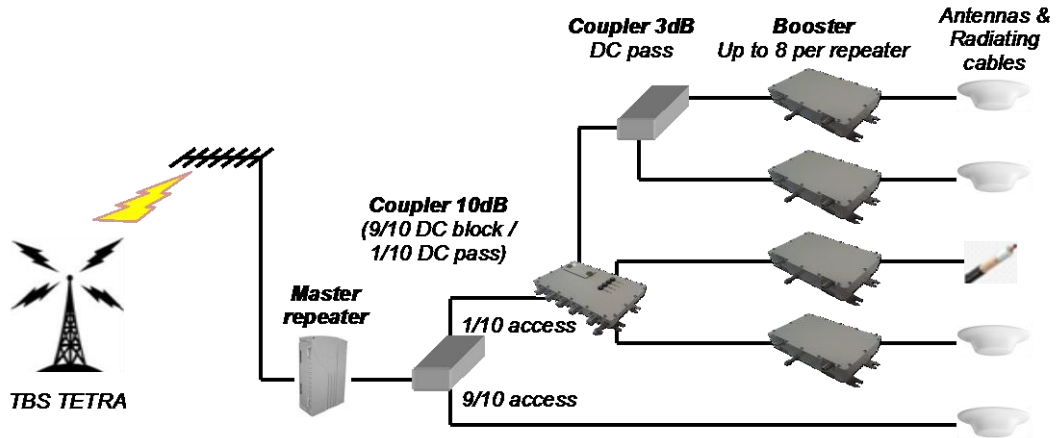
The equipment can embed a monitoring module with WEB and SNMP server. The remote connectivity is made by GPRS, GSM-R or TETRA modem.



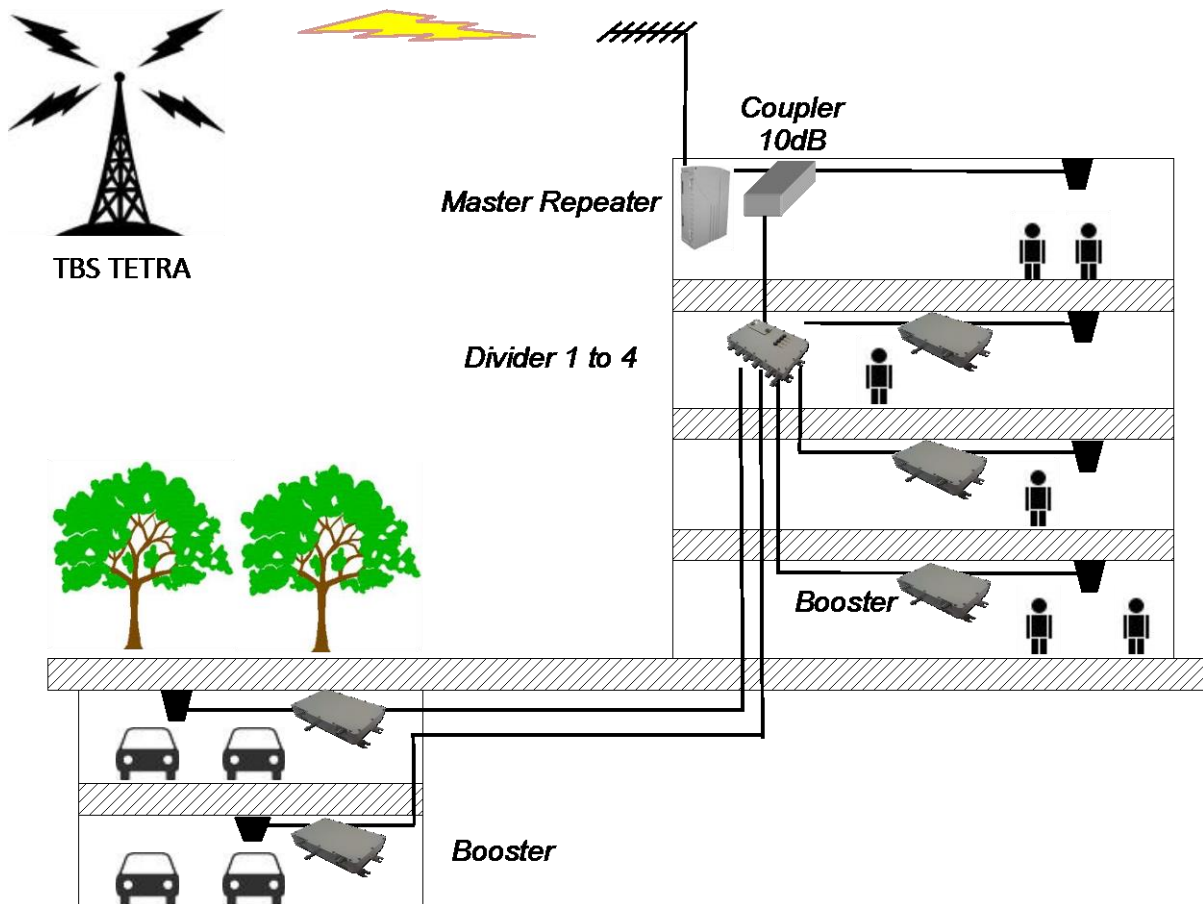
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Synoptic



Example coverage of a building and an underground parking





Solution for Indoor TETRA coverage

AIR Repeater™ TETRA 400 RF-RF with Boosters

Master Repeater RF/RF Features		<u>Up - Link (RX)</u>	<u>Down - Link (TX)</u>
❖ RF Interface			
Frequency range (to specify when ordering)		380 - 385 MHz 385 - 390 MHz 410 - 415 MHz 415 - 420 MHz 450 - 455 MHz 455 - 460 MHz	390 - 395 MHz 395 - 400 MHz 420 - 425 MHz 425 - 430 MHz 460 - 465 MHz 465 - 470 MHz
Bandwidth (to specify when ordering)		From 1 to 5 MHz (Adjusted SAW filter)	
Gain		50dB to 80dB (step 0.5dB)	
Nominal output power	1 carrier	+17 dBm	+17 dBm
	2 carriers	+14 dBm	+14 dBm
	4 carriers	+11 dBm	+11 dBm
	8 carriers	+8 dBm	+8 dBm
Noise figure		4 dB typ. @ Gain = 80dB	
❖ Mechanical and Electrical			
Rating class / Impact protection class (Outdoor case)		IP65 / IK9	
Cooling system	Outdoor case	Natural convection cooling with heat sink	
	Indoor case	Internal fan	
Dimensions (L x H x D)	Outdoor case	429 mm x 577 mm x 224 mm	
	Indoor case	19" x 3U x 200 mm	
Weight		25 kg	
Temperature range	Outdoor case	-25°C / +55°C	
	Indoor case	+5°C / +45°C	
Power supply voltage		Integrated 85-265 VAC power supply Remote supply of boosters : 28 VDC / 1.2 A	
Power consumption		50 VA	
Monitoring		Dry Loop, Green & Red LED WEB, SNMP GPRS Modem (M2M SIM card)	
MTBF		≥ 200 000 hours	


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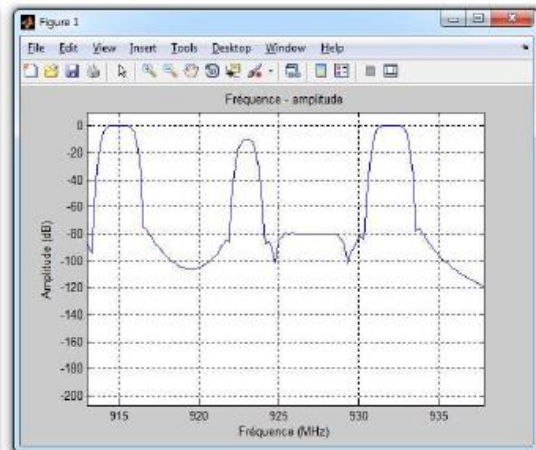
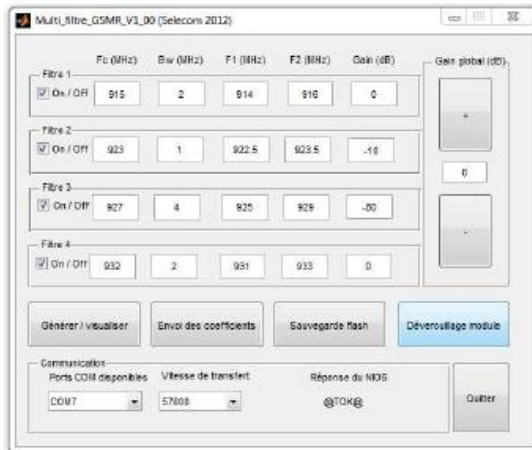


Solution for Indoor TETRA coverage

AIR Repeater™ TETRA 400 RF-RF with Boosters

Master Repeater RF/RF Features			
❖ Optical Interface (Optional)			
Wavelength	1 repeater per fiber (Star)	Downlink : 1310 nm Uplink : 1550 nm	
	Several repeaters per fiber (Daisy-chain)	Downlink : 1310 nm Uplink : 1510, 1530, 1550, 1570 nm	
Optical output power		4 dBm ± 2 dB	
Optical connector		E2000 APC	
Optical Fiber		SMF (G652 and G655)	
Number of optical I/O		1 per repeater (DL + UL on the same fiber) <i>In case of several repeaters per fiber, an external optical coupler is available optional</i>	

Digital Channelization Module (optional)		
Number of rejection filters		4
For each filter	<i>Bandwidth</i>	Adjustable from 100 kHz to 5 MHz (step 12.5 kHz)
	<i>Central frequency</i>	Adjustable from f_0 to $f_0 + 5$ MHz (step 12.5 kHz)
	<i>Attenuation</i>	Adjustable from 0 dB to 30 dB
Group delay		≤ 5 μs



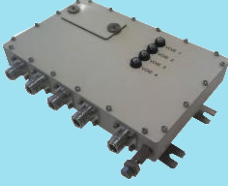
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Solution for Indoor TETRA coverage

AIR Repeater™ TETRA 400 RF-RF with Boosters

Divider 1 to 4 Features 	<u>Up - Link (RX)</u>	<u>Down - Link (TX)</u>
Frequency range	380 – 470 MHz	
Number of ways	4	
Power supply voltage	12-28 VDC from the repeater Remote supply of each booster by switch	
Dimensions	218 mm x 138 mm x 67 mm	
Weight	1,6 kg	
Alarms to the repeater	Monitoring of consumption of each booster Red-green LED for each way	
Cooling system	Natural convection	
Rating class	IP 34	
Connectors	N female	
Temperature range	- 30°C to +45°C	
MTBF	≥ 200 000 hours	

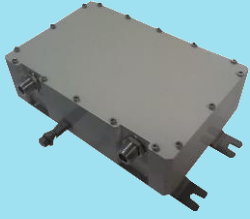
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Solution for Indoor TETRA coverage

AIR Repeater™ TETRA 400 RF-RF with Boosters

Booster RF/RF Features		<u>Up - Link (RX)</u>	<u>Down - Link (TX)</u>
			
Frequency range (to specify when ordering)		380 - 385 MHz 385 - 390 MHz 410 - 415 MHz 415 - 420 MHz 450 - 455 MHz 455 - 460 MHz	390 - 395 MHz 395 - 400 MHz 420 - 425 MHz 425 - 430 MHz 460 - 465 MHz 465 - 470 MHz
Bandwidth (to specify when ordering)		From 1 to 5 MHz (Adjusted SAW filter)	
Gain		≤ 35 dB (automatic adjustment as follows the number of carriers)	
Nominal output power	1 carrier 2 carriers 4 carriers 8 carriers	+10 dBm +7 dBm +4 dBm +1 dBm	+10 dBm +7 dBm +4 dBm +1 dBm
Power supply voltage		12-28 VDC from the divider	
Power consumption		2 W	
Dimensions		218 × 129 × 84 mm	
Weight		1,75 kg	
Connectors		N female	
Rating class		IP 34	
MTBF		≥ 200 000 hours	

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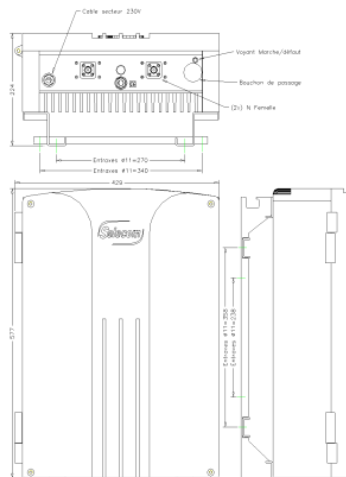


Solution for Indoor TETRA coverage

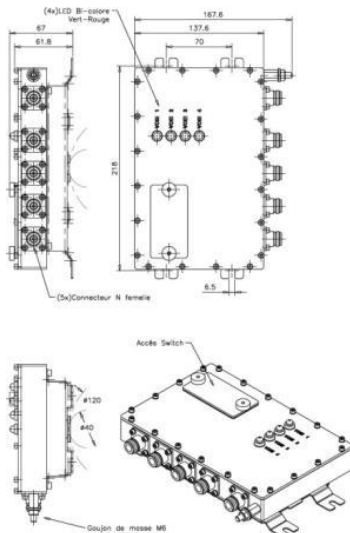
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Mounting Plan

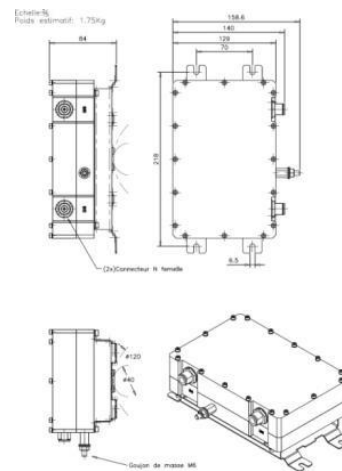
Master and Remote Repeater



Divider 1 to 4



Booster



Ordering Information

Designation	Ordering Code
Master Repeater TETRA RF/RF UL=+17dBm/DL=+17dBm – Outdoor case version	019 725-X
Master Repeater TETRA RF/RF UL=+17dBm/DL=+17dBm – 19" rack version	019 728-X
Divider 1 to 4	019 905
Booster RF/RF +10dBm	019 830-X

Options	Ordering Code
Coupler 1/10-9/10 (DC pass on 1/10, DC block on 9/10)	602 669
Digital Channelization Module	602 801
IP-GPRS Monitoring Module	807 004
Service Outlet	807 005
Automatic Re-starter	807 006
Lightning protection	807 007

Frequency Range	ULDL	380-385 MHz	385-390 MHz	390-395 MHz	395-400 MHz	410-415 MHz	415-420 MHz	420-425 MHz	425-430 MHz	450-455 MHz	455-460 MHz	460-465 MHz	465-470 MHz
X =		38/40A	38/40B	41/43A	41/43B	45/47A	45/47B						

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