

# UNAOHM Srl

## *Presentation*



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# CORPORATE PROFILE

## *The Company*

**UNAOHM** is an Italian private company operating in the telecommunication sector since 1935.

The whole business activity, that includes R&D laboratory, equipment and system design, manufacturing, test facilities, logistic, sales and administrative offices, has its Headquarters in the premises of PESCHIERA BORROMEO (MI) close to the LINATE airport, Milan (Italy).

Financial stability corporate commitment, skilled and dedicated personnel, long term service and support capability, extensive facilities and technologically advanced products are among the strengths that have earned **UNAOHM** a reputation for excellence world-wide.

In order to grant the best service to its Customers **UNAOHM Srl** Quality System (covering all activities of equipment development, system design, manufacturing management, after sales services) is in accord to the international standards.

## *The History*

**UNAOHM** is one of the oldest manufacturers of measuring electronic equipments all over Europe.

It was born thanks to two young engineers, Mr. Enzo Pontremoli and Mr. Giovanni Bozzi, who aimed at projecting and manufacturing lab and portable measuring equipments with higher performance and quality.

The first equipment to be projected was a small oscillator called "EP 1" and it was manufactured just in 1935. It was equipped with two dry batteries and a diode called "type 30" and it was the first mass-manufactured product.

## *The History (Cont.)*

In 1939 the manufacturing activity was slowed down because of the Second World War. In 1946, after its end, the company started its full activity again and its future developments were successfully focused on lab equipment for radio companies, radio repairmen and service centres

From that moment on, UNAOHM established in the domestic and foreign markets, becoming one of the most prestigious European companies.

In 1956, when the first TV broadcasting spread all over Italy, the Milan-based company projected the “field strength meter”, an equipment for installers of TV-receiver facilities. It was the very first time the installer had at his disposal a meter which enabled him to analyze the frequency spectrum, measure the field strength of carriers and watch TV pictures in order to estimate their quality.

During the following years, the company broadened its activity field developing learning systems and equipments for technical schools of electronics and telecommunications, becoming a leader also in this environment.

Always actively committed to consolidate its present situation and keep up the future, **UNAOHM** grew uninterruptedly inside the telecommunication field, manufacturing a wider and wider range of field strength meters and acquiring a stronger and stronger reputation for prestige, quality and reliability both in the domestic and foreign markets.

Being continuously in line with its own policy of playing a key role from a quality point of view, nowadays the company manufactures a complete range of up-to-date field strength meters, keeping up the latest digital technology, in order to provide the installers with the most suitable equipments according to their needs.

Moreover, the company carefully takes care of pre-sale and after-sale service, both on domestic territory and abroad, using cutting-edge means of communication and accurately organizing service centres to provide all customers with an always efficient service.

## *The Radio & System Division*

With the incorporation in its organization of the *AReS-Apparati Radio e Sistemi - Italy* staff **UNAOHM** has established inside its structure the Radio System Division.

Thanks to the expertise, gained in many years of activity in the telecommunication sector, the Radio System Division staff has the capability to design and develop a wide variety of telecommunication equipment, as well as to develop telecommunication systems and to offer a complete range of services.

## *The Services*

**UNAOHM** Radio System Division provides a professional engineering service capable of feasibility studies, system design, project planning and management, in-factory and on-site training courses offering solutions to a wide range of telecommunication problems.

For successful project completion skilled installation teams take care of system installation and commissioning, both in Italy and abroad.

After sales assistance includes on site maintenance, fast repair service and long term spare parts availability and preventive obsolescence correction actions, for extending equipment's life well beyond traditional 10 years target.

## ***Main Products***

**UNAOHM** design and manufactures:

**FIELD STRENGTH METERS**, for antennas TV systems alignment and RF signals and interferences analysis both in analog and digital techniques.

**LAB INSTRUMENTS**, oscilloscope and spectrum analyzer.

**MEASUREMENT EQUIPMENT FOR PHOTOVOLTAIC PLANTS**, for PV systems performances analysis, monitoring, commissioning and certification.

**WIRELESS Wi/Fi ANTENNA POINTING SYSTEM**, for Wi-Fi systems alignment and test.

**ANALOGUE and DIGITAL RADIO EQUIPMENT**, for both line of- sight and troposcatter communications with frequency band of up to 38 GHz.

**MULTIPLEXERS**, to adapt system capacity to the most complex voice and data network.

**Modular SINGLE and DUAL CHANNELS RADIO** equipment for telephone and data lines extension, supplemented by various optional units and accessories.

**Compact UHF RADIODEM**, particularly suited for hard environment telemetering systems.

**HOT-LINE CONSOLE** assembly, operating over up to 16 single or redundant multiplex channels, for maximum voice circuit reliability.

## *Main Products (Cont.)*

**SMALL SERIES CUSTOM PROJECTS**, as analog, digital or optical fiber interface converters, according to customer requirements.

**NETWORK MANAGEMENT SYSTEMS** (both hardware and software). Based on widely recognized SNMP protocol, NMS permit the standardization of management platform, allowing full integration in the same network between **UNAOHM** and third part supplied products

In addition **UNAOHM** supplies:

**MOBILE RADIO SYSTEMS** that can be integrated into Telecom networks with different configurations.

**DATA DEVICES** as voice band modems, base-band modems, equipment for voice and telegraphic signal transmission compatible with any telephone interface, port sharing devices, data multiplexers, local area network systems.

**OPTICAL FIBER TERMINALS**, to provide suitable interface to PCM multiplexers and other digital devices.

**PRIVATE BRANCHING EXCHANGE and PUBLIC ADDRESS** systems tailored to customer requirements (including classified environment).

**CONTINUITY POWER SYSTEMS and SOLAR POWER SYSTEMS**, for reliable communications.

**EQUIPMENT SHELTERS**, both active and passive cooling, properly sized to meet any dimensional and power dissipation exigency.

**AIRCRAFT NAVAIDS & WARNING LIGHT SYSTEMS**, according to ICAO requirements.

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## *Main Projects Realized and Managed by Radio System Division Staff*

Customer: **ABB S.p.A. Process and Automation Division, Italy.**

Supply and installation of a digital radio link for SETH off-shore platform. Final customer TECNOMARE –ENI-PETROBEL Egypt.

Customer: **ABB S.p.A. Process and Automation Division, Italy.**

Supply and installation PCM multiplex system for PORT FOUAD “A” – PFSW, PORT FOUAD “A” – PFSE1 and PORT FOUAD “A” – PFSE2. Final customer PETROBEL-ENI-Egypt..

Customer: **ABB S.p.A., Process and Automation Division, Italy.**

Supply and installation of EL GAMIL Plant Telecommunication System, including three digital radio links between off-shore platforms, PORT FOUAD “A” – PFSW, PORT FOUAD “A” – PFSE1 and PORT FOUAD “A” – PFSE2. Final customer PETROBEL-ENI-Egypt

Customer: **ABB S.p.A. Process and Automation Division, Italy.**

Supply and installation of a digital radio link for TUNA off-shore platform. Final customer TECNOMARE –ENI-PETROBEL Egypt.

Customer: **ABB Industrie, Italy.**

Supply and installation of Ras EL Barr Concession Telecommunication System, including digital radio links and aeronautical VHF transceiver, with over-water hop to HA'PY offshore platform. Final customer GUPCO-Egypt.

Customer: **ABB Industrie, Italy.**

Offshore to offshore digital radio link from existing platform to new TEMSAH platform. Final customer PETROBEL-AGIP, Egypt.

Customer: **ABB Turbochargers – S.A.E.**

Supply and installation of a digital radio link for Temsah NW2 off-shore platform. Final customer Enppi-ENI-PETROBEL Egypt.

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## *Main Projects Realized and Managed by Radio System Division Staff (Cont.)*

Customer: **ABB Power Systems & Automation Technology – S.A.E.**

Supply and installation of digital radio link spare parts. Final customer ENI-PETROBEL Egypt.

Customer: **ABB Power Systems & Automation Technology – S.A.E.**

Supply and installation of spare antenna system for DARFEEL off-shore platform. Final customer ENI-PETROBEL Egypt.

Customer: **ABB Power Systems & Automation Technology – S.A.E.**

On site maintenance service on the PETROBEL radio network at El Gamil and Abu Madi areas. Final customer ENI-PETROBEL Egypt.

Customer: **Aerospace Research Centre, Italy.**

Supply and installation of digital radio equipment to establish reliable communication links between the S. Marco Satellite Launch platform and onshore CONTROL CENTER. Malindi bay, Kenya.

Customer: **AGIP, Italy.**

Supply and installation of a thirty Radiomodem's network for refinery supervisory system. Ragusa.

Customer: **AGIP NAME, Libya.**

Supply and installation of Tripoli-Sabratah radio network Interlink.

Customer: **AGIP OIL CO. Libya.**

Supply and installation of 1.5 & 23 GHz digital links (high and low capacity) and intelligent multiplexers, to expand corporate voice and high-speed data communication capabilities. Realization of a nation-wide, SNMP based, Network Management System.



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## *Main Projects Realized and Managed by Radio System Division Staff (Cont.)*

Customer: **AGIP Research, Congo.**

Supply and installation of Troposcatter System for ZATCHI Oil Field.

Customer: **AGIP Research, Congo.**

Supply and installation of Troposcatter System for LOANGO Oil Field.

Customer: **AGIP Research, Congo.**

Supply and installation of digital links for onshore communication facilities to AGIP Main Office.

Customer: **Air force, Italy.**

Supply and installation of several analog and digital radio links.

Customer: **Air force, Italy.**

Supply of intelligent multiplexers equipped with Universal Telephone Line interface complex CCU-30.

Customer: **ALENIA, Italy.**

Supply and installation of several Digital Radio Links for secondary radar interconnection to Airport Control Tower.

Customer: **ALENIA, Italy.**

Supply and installation of three 400 MHz / 2 Mbit/s digital radio links for voice&data retrieving from remote sites. UZBEKISTAN project.

Customer: **ALENIA, Italy.**

Supply and installation of Troposcatter System and digital radio link network for the Euromaya project interesting Honduras, Costa Rica and Guatemala.

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## *Main Projects Realized and Managed by Radio System Division Staff (Cont.)*

Customer: **Bahwan Projects & Telecoms LLC, Oman.**

Supply of Redundant Hot-Line Console assemblies for Operative Control Rooms interconnection. Final Customer: PDO (Petroleum Development Oman).

Customer: **ECIS S.r.l, Italy**

Expansion of 'RAS EL BARR CONCESSION' field Telecommunication System including digital radio link to AKHEN offshore platform. Final customer GUPCO, Egypt.

Customer: **ENEL, Italy.**

Supply of several UHF Radiomodems for renewing a portion of telemetry networks. Palermo and Venice provinces.

Customer: **AT&T, Ireland.**

Supply of Analog Radio Terminals for Rural Network in different African Countries trough AT&T.

Customer: **ELSAG BAILEY, Italy.**

Supply and installation of PORT FOUAD field Telecommunication System including digital radio link to PORT FOUAD offshore platform. Final customer PETROBEL-AGIP, Egypt.

Customer: **ELSAG BAILEY, Italy.**

Supply and installation of DARFEEL field Telecommunication System including digital radio link to DARFEEL offshore platform. Final customer PETROBEL-AGIP, Egypt.

Customer: **ELSAG BAILEY, Italy.**

Expansion of PORT FOUAD field Telecommunication System extending communication to WACAR offshore platform. Final customer PETROBEL-AGIP, Egypt.

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## *Main Projects Realized and Managed by Radio System Division Staff (Cont.)*

Customer: **ENI Oil Co. Libya (Mellitah Oil & Gas BV).**

Supply and installation of a digital radio network for A100 desert area, between ENI Oil field and Waha Oil field, including local SNMP based NMS.

Customer: **ENI Oil Co. Libya (Mellitah Oil & Gas BV).**

Supply and installation of a digital radio network at desert area, between ENI Oil A100 field and R82 field , including local SNMP based NMS.

Customer: **Ericsson, Nigeria.**

Supply and installation of Digital Radio Terminals to Ericsson for the Nigerian National Petroleum Company to establish a country network.

Customer: **Ericsson, Sweden.**

Supply of 25 digital radio links for a microwave backbone network in Iraq to work with the national radio mobile network.

Customer: **Ericsson, Sweden.**

Supply and installation of Digital radio links for public mobile radio network in Guang Tzu province. China.

Customer: **FOXBORO Italia, Italy.**

Supply and installation of BALTIM EAST digital radio link system between Onshore Plant and BALTIM EAST offshore platform.  
Final customer PETROBEL-Egypt.

Customer: **Guatel, Guatemala.**

Supply of 20 low channel capacity radio links for a rural-telephone project in Guatemala.

Customer: **Ministry of Communications, Sana'a , Yemen Arab Republic.**

Supply and installation of several analog, digital and troposcatter radio links to establish the national telephone public network.

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## *Main Projects Realized and Managed by Radio System Division Staff (Cont.)*

Customer: **Ministry of Defense, Italy.**

Supply of several analog and digital radio terminals for voice and high-speed data applications.

Customer: **Ministry of Defense, Italy.**

Extension of troposcatter radio link between Mainland and Sicily Island.

Customer: **Ministry of Defense, Italy.**

Supply of 2 Mb/s AMI/HDB3 interface converter, customized according to customer requirements (selectable line speed 256-512-1024-2048 Kbit/s).

Customer: **Ministry of Post and Telecommunications, Italy.**

Radio link systems in the 2,3 GHz and 400 MHz band Porto Cervo-M. Moro; M. Moro-M. Limbara – Italy.

Customer: **Ministry of Public Works, Italy.**

National radio network renewal with 2,3 GHz digital radio terminals.

Customer: **Ministry of Telecom, El Salvador.**

Supply of 40 low channel capacity radio links for a rural-telephone project in EL SALVADOR.

Customer: **MODERN WORLD CO. Libya.**

Supply and installation of two 'over-water' digital links and intelligent multiplexers, to extend voice and high-speed data communication to BOURI FIELD platforms. Final Customer: AGIP OIL COMPANY.

Customer: **Navy force, Italy.**

Supply and installation of several 1.5 GHz digital radio links 2+2 Mb/s capacity.

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## ***Main Projects Realized and Managed by Radio System Division Staff (Cont.)***

Customer: **Nigerian AGIP Oil Company, Nigeria.**

Supply and installation of Tower Obstruction Lights and remote telemetering system for the country microwave network.

Customer: **OTE, Italy.**

Supply and installation supervision of 800 Km radio backbone for Bolivian Air force national network.

Customer: **Pharaonic Petroleum Company (PhPC)**

Supply of spare parts for the existing digital radio links and PCM multiplex systems.

Customer: **Pharaonic Petroleum Company (PhPC)**

Supply of test instruments for telecommunication.

Customer: **Pharaonic Petroleum Company (PhPC)**

On site maintenance service on the PhPC radio & multiplex system at West Harbor, Shatta onshore locations and Ha'Py and Aken platforms.

Customer: **Raytheon, USA.**

Supply of HDB3-EUROCOM code converters.

Customer: **SIELTE, Italy.**

Supply and installation supervision of twelve 2,3 GHz/2 Mbit/s digital radio links for Italian intra-regional voice&data network.

Final Customer: Ministry of Public Works.

Customer: **SNAMPROGETTI, Italy.**

Supply and installation of Redundant Hot-Line Console assemblies for Operative Control Rooms interconnection. Final

Customer: PDO (Petroleum Development Oman).

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## ***Main Projects Realized and Managed by Radio System Division Staff (Cont.)***

Customer: **SNAMPROGETTI, Italy.**

Supply and installation of Redundant Hot-Line Console assemblies for Operative Control Rooms interconnection. Final Customer: PDO (Petroleum Development Oman).

Customer: **SNAMPROGETTI, Italy.**

Supply and installation of KITINA offshore platform Telecommunication System for AGIP Research, Congo. System includes Troposcatter and LOS links, PBX, aeronautical and marine VHF radios, Non Directional Beacon and Public address system.

Customer: **Statoil /STK, Norway.**

Supply and installation supervision of Troposcatter System for interconnection between Norwegian Oil Platform Gullfaks and the onshore station.

Customer: **ZUEITINA OIL COMPANY, Libya.**

Replacement and maintenance of troposcatter antenna systems including towers, nine meters parabolic antennas and feeders.

Customer: **ZUEITINA OIL COMPANY, Libya.**

Replacement of RF cables and feeders on 60 ft billboard antennas (troposcatter).

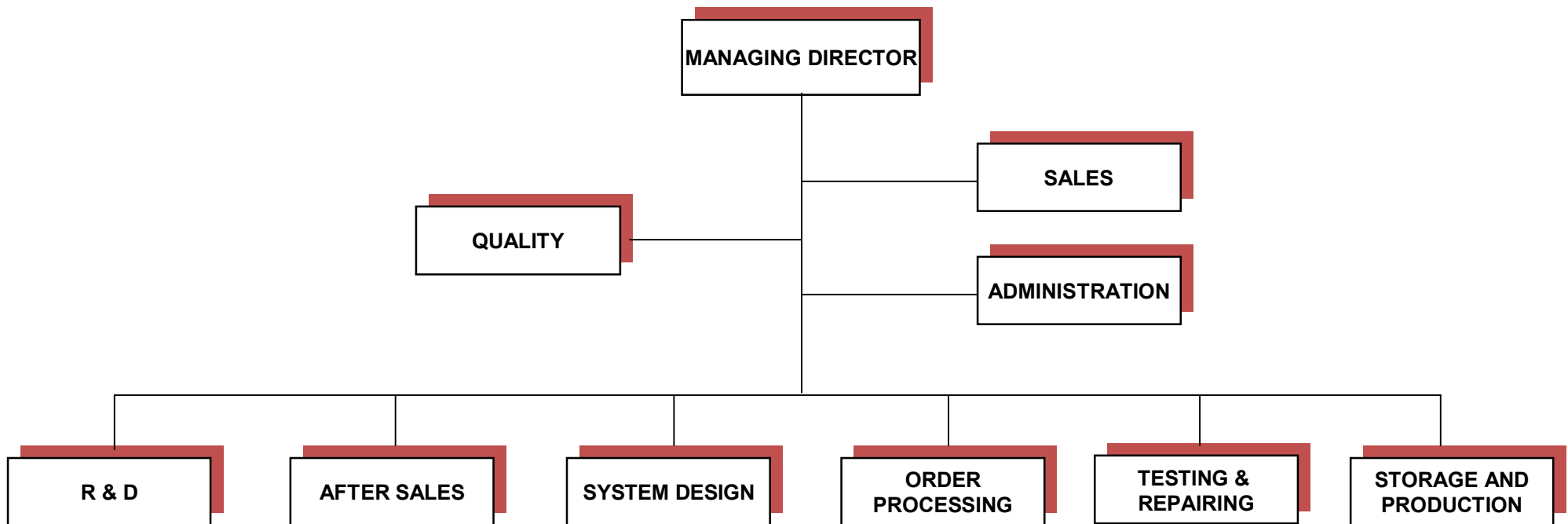
Customer: **ZUEITINA OIL COMPANY, Libya.**

Supply and installation of three 400 MHz 2x2 Mb/s radio links between on-shore locations at desert area, FIDDA-HAKIM, 103A-103D and 103A-Airport.

Customer: **ZUEITINA OIL COMPANY, Libya.**

Supply Of spare parts for the existing radio network at A103 and Fidda desert field.

# Company Organization



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## *Main Products - Radio & Systems Division*

### **Radio Equipment**

- Analog (Capacity 1 ÷ 120 ch. - 70 MHz ÷ 2,4 GHz)
- Digital (2+2 ch e 64Kbps - 70 MHz ÷ 470 MHz)
- Digital (2 e 2+2 Mbit/s - 335 MHz ÷ 2,4 GHz)
- Digital PDH (2 Mbps ÷ 16 x 2 Mbps - 7 GHz ÷ 38 GHz)
- Digital SDH (STM1 ÷ 2 x STM1 - 7 GHz ÷ 38 GHz)

### **Troposcatter Systems**

- Analog (from 6 to 120 ch. - 335 MHz ÷ 1,5 GHz)
- Fixed & Mobile Applications
- Double or Quadruple Diversity

### **Radiomodems**

- 9600 bits/s
- Frequency Range 415 ÷ 470 MHz
- Point to Point & Multipoint Application



## *Main Products – Radio & Systems Division (Cont.)*

### **Multiplexer**

- PCM Multiplex 2 and 2+2 Mbps
- SDH Add Drop Multiplexer

### **Code Converters**

- Eurocom / HDB3
- Eurocom / V.35 / X21
- AMI / HDB3
- Ethernet / G.703

### **Fiber Optic Modems**

- 4 x 2 Mbps multimode
- 4 x 2 Mbps singlemode

# Analog Radio Terminals

## Frequency (MHz)

Capacity	70	170	400L	400H	900	1500	2300
1							
2							
6							
12							
24							
60							
120							

# Digital Radio Terminals - Small Capacity

Frequency (MHz)

Modulation	Capacity	70	170	400
DFM	2 +2 CH			
16QAM	64Kb/s			

# Digital Radio Terminals - Small & Medium Capacity

Frequency (MHz)

Modulation	Capacity	400L	400H	900	1500	2000	2400
FSK	2 Mb/s	■	■	■	■		
QPSK	2 Mb/s	■	■	■	■	■	
QPSK	2+2 Mb/s				■		
16QAM	2 Mb/s						■
16QAM	2+2 Mb/s				■		■
16QAM	4 x 2 Mb/s				■		

# Digital Radio Terminals High Capacity

Frequency (GHz)

Modulation	Capacity	4/6	7/8	11/13	15	18	23/26/38
QPSK / 128 QAM	1E1 to 32E1						
32 / 128 QAM	STM1						
128QAM	2 x STM1						

# Digital Radio Terminals High Capacity- License Exempt

## Frequency (GHz)

Modulation	Capacity	5,8	17,0÷17,3	24,05÷24,250
32 / 128 QAM	157 Mb/s			
128 QAM	310 Mb/s			

Spectrum and data rate scalable from 5 to 310 Mbps

# Analog Troposcatter Systems

Frequency (MHz)

Capacity	400L	400H	900	1500
6				
12				
24				
60				
120				

## ***Radiomodems RDM***

- **Frequency Band** 415-470MHz
- **RF Power** 400 mW / 5W
- **Transmission Rate** 1,2 - 2,4 - 4,8 - 9,6 Kb/s
- **Data Format** Sync/Async
- **Activation Time** <=25ms
- **Operating Mode** Simplex/Half duplex/Full duplex
- **Digital interface** V24/RS232C
- **Voice interface** RJ11 (internal)
- **Power Supply** +12Vdc / +24Vdc
- **Weight** 800 gr. / 2250 gr.
- **Temperature Range** -10 to +55° C



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