

Air Traffic Control & Defence Products

Over the years, RYMSA has successfully participated in the development and manufacture of antenna systems and related products on the fields of Air Traffic Control and Defence, in response to several different needs of our customers.

The outstanding capabilities of RYMSA to provide reliable engineering solutions and products tailored to the specifications of our customer have been proven with great excellence in each and every of the jobs in which we have been involved.

RYMSA supplies within this field are usually the result of an accurate customization of a wide set of stringent customer specifications. Several of them have ended up taking part of the current RYMSA portfolio of products. At the very end, RYMSA has demonstrated to be a solid and flexible partner for our customers, achieving a set of products displaying a high degree of variety and applications.

MSSR ATC Radar Antennas and Pedestals

Secondary radar antennas and pedestals have become some of the most outstanding and best known RYMSA products on the Air Traffic Control field.

Two different antennas are available for MSSR applications: one LVA array of 8m aperture to be used at major locations, and one smaller array displaying 2.6m aperture for ground and naval purposes. The antennas operate in L- band, and are valid for both civil and military applications.

RYMSA also supplies rotating pedestals. There is one type of pedestal per each of the previously mentioned antenna models. These pedestals are ready to work under extreme environmental conditions, and they can be used either with RYMSA antennas or with any other array of similar characteristics.



Electronics Counter-Measures System

The involvement of RYMSA in a job devoted to equip several ships of the Spanish Naval forces with an Electronics Counter-Measures System, constitutes a very good example of RYMSA capabilities to succeed in the development and manufacture of very customized solutions required by our customers.

The scope of the involvement of RYMSA in this job has gone beyond our core competences as suppliers of antenna systems and RF passive elements, having successfully developed and manufactured active equipments as well.

The system delivered by RYMSA for each ship includes the radiating antennas, the RF power splitting network, the high power RF amplifiers and their power supplies, all of them enclosed in two pressurized shelters.



MIDS Program Communications System

MIDS Program, devoted to the development of components for the Link-16 digital datalink system operating in L-band, has been one more opportunity for RYMSA to demonstrate our capacities by supplying a complete solution involving product development, manufacture and system integration.

The full system supplied by RYMSA includes both the receiving and the transmitting-receiving antennas, besides a fully equipped rack integrating the rest of the elements: the filtering system, antenna matching unit, power interface units, high power RF amplifiers and the control computer.

Several ships of the Spanish naval forces have been supplied with these products.



Surveillance Radar

Surveillance radar for the protection of borders and for ground control approach is another field in which RYMSA has invested development and manufacturing efforts to achieve products meeting a set of stringent customer specifications.

Examples of this are two antenna systems that work in X-band. One of them is intended for use in naval platforms, as the antenna of a low interception probability high-resolution surveillance radar. Another one consists of a dual-reflector high gain antenna employed for application in coastal sites.



LVA 8m. Antenna
MSSR Air Traffic Control
Model: RSL-2730/2731

RSL-2730/2731 model is a large vertical aperture antenna for application on Monopulse Surveillance Secondary Radar Systems (MSSR).

The antenna operates at the frequencies of 1030 MHz (interrogation) and 1090 MHz (reception and reply), and it consists of an array of radiating columns properly fed with the necessary phase and amplitude tapers requested to achieve the radiation pattern performances.

The antenna can be supplied in two different versions, for civil use (RSL-2730) or for military applications (RSL-2731). It supplies Sum, Difference and SLS beams, a customized elevation pattern, a sharp azimuth response and a low level of illumination to the ground.

Electrical Specifications

Frequency range	1030-1090 MHz
Peak gain	27 dBi
Polarization	Vertical
Impedance	50 Ohm
VSWR	£ 1.5:1
Channels	Omni, Sum and Difference
Transmission modes	MkXII, Mode S, Mode 5
Input Connectors type	N Socket



Mechanical & Environmental Specifications

Dimensions (W x D x H)	8.0 x 1.1 x 1.6 m
Operational Temperature range	-40°C to +60°C
Relative Humidity	5% to 100%
Driving Rain	< 60 mm/h
Snow load	< 200 kg/m ²
Ice loading	< 12.7mm radial thickness
Solar radiation	1135 w/m ² during 4 hours
Barometric pressure	90 hPa to 1080 hPa
Installation height	0-3600 m above sea level
Weight	Civil: Approx. 405 Kg (including interface to pedestal) Military: Approx. 445 Kg (including interface to PSR)
Painting	According to the desired RAL



Mechanical Accesories

- Interface to a pedestal
- Interface to a PSR

RYMSA will reserve the right to make any changes without notice.

Rotating Pedestal Especially suitable for LVA 8m. Antenna Models: RT-210 & RT-220

RYMSA offers two models of turning pedestals especially suitable to be used on MSSR systems for the rotation of the LVA 8m antenna, whenever the latter is intended to be installed as a stand-alone unit.

The pedestals are designed to be used on severe environmental conditions with very reduced maintenance tasks.

RT-210 model is single drive, while RT-220 is dual drive. The pedestals offer an excellent azimuth accuracy by means of the use of encoders, and they are delivered including the pedestal itself, with one or two motors, and the control cabinet unit.

Electrical Specifications

Models	RT-210 (Single Drive Unit) RT-220 (Dual Drive Unit)
Frequency range	1000-1100 MHz
Insertion losses	< 0.5 dB
Isolation between channels	< 50 dB
Impedance	50 Ohm
VSWR	£ 1.2:1 (WOW included)
Channels	Omni, Sum and Difference
Transmission modes	MkXII, Mode S, Mode 5
Control Cabinet	Included
Control Modes	Local, remote and Maintenance
Electrical service socket outlet	220VAC or 125VAC
Max. Power consumption	12 KVA
Connector type	N Socket



Dual Drive Pedestal

Mechanical & Environmental Specifications

Dimensions (W x D x H)	1.0 x 0.75 x 1.0 m
Rotation speed	5 Rpm to 15 Rpm
Operational Temperature range	-40°C to +60°C
Relative Humidity	5% to 100%
Driving Rain	< 60 mm/h
Snow load	< 200 kg/m ²
Ice loading	< 12.7 mm radial thickness
Solar radiation	1135 w/m ² during 4 hours
Barometric pressure	90 hPa to 1080 hPa
Installation height	0-3600 m above sea level
Weight (1)	< 450 Kg (RT-210 model) < 600 Kg (RT-220 model)
Painting	According to the desired RAL



Control Cabinet Unit

Mechanical Accesories

Interface to the tower

Notes:

(1): Control cabinet: unit weight not considered

-The whole technical features can be tailored according the final customer request.

**2.5m Antenna
MSSR Air Traffic Control
Suitable for ground and naval use
Model: RSL-2130**

RSL-2130 model is a vertical aperture antenna of compact size and excellent performances for application on Monopulse Surveillance Secondary Radar systems.

The antenna operates at the frequencies of 1030 MHz (interrogation) and 1090 MHz (reception and reply), and it consists of an array of radiating columns properly fed with the necessary phase and amplitude tapers requested to achieve the radiation pattern performances. The antenna complies with naval environmental specifications so that it is suitable for operation on ships as well as on ground locations.

The antenna supplies Sum, Difference and SLS beams, a customized elevation pattern, a good azimuth response and a low level of illumination to the ground.

Electrical Specifications	
Frequency range	1030-1090 MHz
Peak gain	21 dBi
Polarization	Vertical
Impedance	50 Ohm
VSWR	≤ 1.4:1
Channels	Omni, Sum and Difference
Transmission modes	Mk II, Mode S, Mode 5
Input Connectors type	N Socket



Mechanical & Environmental Specifications	
Dimensions (W x D x H)	2.6 x 0.34 x 1.5 m
Operational Temperature range	-40°C to +60°C
Relative Humidity	5% to 100%
Driving Rain	< 60 mm/h
Operating Snow load	< 22 kg/m ²
Survive Ice loading	< 100mm radial thickness
Solar Radiation	1135 w/m ² during 4 hours
Barometric pressure	900 hPa to 1080 hPa
Installation height	0-3600 m above sea level
Weight	< 140 Kg. Including pedestal interface
Painting	According to the desired RAL

Mechanical Accesories	
Interface to a pedestal	
Interface to a PSR	
Filtering system	

Pedestal for MSSR 2.5m. Antenna Especially Suitable For Civil Applications Model: RT-211

RT-211 turning pedestal is suitable to be used on MSSR systems using compact-sized rotational antennas, such as RYMSA RSL-2130 or similar.

The pedestal is designed to be used on severe environmental conditions, such as hard ground locations and ships, with very reduced maintenance tasks.

RT-211 model is a compact single drive pedestal, and it supplies an excellent azimuth accuracy by means of the use of encoders. The pedestal is complemented by a robust control cabiner unit, prepared for installation on a rack.

Electrical Specifications

Model	RT-211 (Single Drive Unit)
Frequency range	1000-1100 MHz
Insertion losses	< 0.5 dB
Isolation between channels	< 50 dB
Impedance	50 Ohm
VSWR	£ 1.2:1 (WOW included)
Channels	Omni, Sum and Difference
Transmission modes	MkXII, Mode S, Mode 5
Control Cabinet	Included
Control Modes	Local, remote and Maintenance
Electrical service socket outlet	400VAC
Max. Power consumption	3 KVA
Connector type	N Socket



Pedestal

Mechanical & Environmental Specifications

Dimensions (W x D x H)	Pedestal: 716 x 716 x 655 mm Control Unit: 491 x 400 x 482 mm
Rotation speed	Programmable: from 6 Rpm to 60 Rpm
Operational Temperature range	-40°C to +60°C
Relative Humidity	5% to 100%
Driving Rain	< 60 mm/h
Snow load	< 22 kg/m ²
Ice loading	< 100mm radial thickness
Solar radiation	1135 w/m ² during 4 hours
Barometric pressure	900 hPa to 1080 hPa
Installation height	0-3600 m above sea level
Weight (1)	< 140 Kg. Including pedestal interface
Painting	According to the desired RAL



Control Cabinet Unit

Notes:

(1): Control cabinet: unit weight not considered

-The whole technical features can be tailored according to the final customer request.

Mechanical Accesories

Interface to the tower	
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