

# METEOR 700S



**METEOROLOGY**  
Gematronik Weather Radar Systems

## METEOR 700S WEATHER RADAR

The METEOR 700S sets the benchmark in weather radar technology for Meteorological Services with special emphasis on long-range surveillance and extreme precipitation in tropical regions.

The METEOR 700S combines cutting-edge technologies with straight-forward and reliable implementation. It features an S-Band magnetron transmitter with a 2nd generation solid-state modulator, a digital receiver, a high-precision antenna and Rainbow<sup>®</sup> 5, the most up-to-date software package for meteorological users.

## METEOR PRODUCT LINE ADVANTAGES

- Optimized for Rainbow<sup>®</sup> 5, the most advanced meteorological software available on the market today
- Cutting-edge 16 bit signal processor GDRX<sup>®</sup> 5
- Dynrex receiver technology
- Unattended remote operation 24 hours a day, 365 days a year
- Long-life, state-of-the-art technology
- Full remote surveillance and control capability based on Ravis<sup>®</sup> maintenance tool
- Comprehensive BITE system
- Full network capability in heterogeneous networks

- Maximum use of COTS components (e.g. PC-based signal processing)
- Simultaneous dual polarization capability available in conventional and receiver-over-elevation configurations

## METEOR 700S SYSTEM ADVANTAGES

- High-end DWR with unparalleled price-performance ratio
- Proven magnetron technology
- Graceful degradation modulator
- Wide dynamic range receiver, based on Dynrex dual-channel implementation
- Compliant with EU RTTE Directive due to proprietary high-power filter technology
- Minimization of lifecycle costs due to high reliability
- Improved range resolution and scanning speed through multi-trip echo recovery
- S-Band advantage: Optimized for long-range surveillance under conditions of extreme precipitations



## TECHNICAL DATA

SYSTEM	METEOR 700S
Mode	Doppler, Dual-Polarization
Operating Frequency Range	2700 – 2900 MHz (S-Band)
Pulse Width Range	0.5 – 3.3 $\mu$ s
Pulse Widths	280, freely selectable in increments of 10 ns
Pulse Repetition Frequency [PRF]	250 – 2000 Hz, user selectable
Typical Operational Range / Technical Range	400 km / 600 km
Maximum Doppler Velocity	$\pm$ 214 m/s
System Phase Stability	$\leq$ 0.15°
<b>ANTENNA</b>	
Type	Parabolic, prime-focus reflector with elevation-over-azimuth positioner
Reflector Diameter	8.5 m
Minimum Gain	$\geq$ 44.5 dBi
Maximum Half Power Beam Width	$\leq$ 1.0°
Step Response Time for 2° step $\pm$ 0.1°	$\leq$ 1.5 s
Polarization	Horizontal / Horizontal and vertical
Angle Span	0° – 360° continuous in azimuth, -2° – +182° in elevation
Angular Positioning Accuracy	$\pm$ 0.05°
Maximum AZ Scanning Speed	6 rpm
<b>RADOME</b>	
Size	11.8 m
Type	Sandwich, fiberglass with foam core; quasi-random panel cut
Transmission Losses - one-way, dry surface	0.2 dB
<b>TRANSMITTER</b>	
Type	Coaxial Magnetron with solid state, IGBT-switched modulator
Peak Power	850 KW

### RECEIVER

Type	Superheterodyne, dual downconversion
Noise Figure (Total Receiver)	$\leq$ 2.0 dB
Linear Dynamic Range @2.0 $\mu$ s	$\geq$ 118 dB

### GDRX® 5 DIGITAL RECEIVER & SIGNAL PROCESSOR

Type	Modular, multi-channel digital receiver, connected to commercial-off-the-shelf industrial PC as signal processor
Intermediate Frequency [IF]	60 MHz
IF Sampling	16 bit, 180 MHz, 6 channels
Maximum Number of Processed Range Bins	10.000 per polarization @ fully activated algorithm chain
Minimum Processing Resolution	15 m
Processing Mode	PPP, FFT/DFT, Trip recovery and filtering
Clutter Filters	IIR, DFT linear or GIP (Gaussian iterative) interpolation
Matched Filter	Dynamic pulse-to-pulse, TNC

### RAVIS® MAINTENANCE SOFTWARE

Recommended Computer Platform	Commercial Off-the-Shelf Notebook
Operating System	Linux or Windows

### RAINBOW® 5 METEOROLOGICAL SOFTWARE

Recommended Computer Platform	Commercial Off-the-Shelf PC
Operating System	Linux or Windows
Standard Radar Meteorological Products	PPI, MPPI, RHI, CAPPI, Pseudo-CAPPI, MCAPPI, MAX, VCUT, MVCUT, EHT
Optional Product Groups	Hydrological, Aviation, Shear, Short-Term Forecasting, Phenomena Detection, Dual-Polarization, Pre- and Post-Processing, Warning

standard values, not an absolute limitation

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