

# 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® 5, the most up-to-date software package for meteorological users.

## METEOR PRODUCT LINE ADVANTAGES

- Optimized for Rainbow® 5, the most advanced meteorological software available on the market today
- Cutting-edge 16 bit signal processor GDRX® 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® 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 µs  |
| 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                   | ± 214 m/s   |
| System Phase Stability                     | ≤ 0.15°   |
| ANTENNA                                    |   |
| Type                                       | Parabolic, prime-focus reflector with elevation-over-azimuth positioner |
| Reflector Diameter                         | 8.5 m   |
| Minimum Gain                               | ≥ 44.5 dBi  |
| Maximum Half Power Beam Width              | ≤ 1.0°  |
| Step Response Time for 2° step ± 0.1°      | ≤ 1.5 s   |
| Polarization                               | Horizontal / Horizontal and vertical                                    |
| Angle Span                                 | 0° – 360° continuous in azimuth, -2° – +182° in elevation               |
| Angular Positioning Accuracy               | ± 0.05°   |
| Maximum AZ Scanning Speed                  | 6 rpm   |
| RADOME                                     |   |
| Size                                       | 11.8 m  |
| Type                                       | Sandwich, fiberglass with foam core; quasi-random panel cut             |
| Transmission Losses - one-way, dry surface | 0.2 dB  |
| TRANSMITTER                                |   |
| Type                                       | Coaxial Magnetron with solid state, IGBT-switched modulator             |
| Peak Power                                 | 850 KW  |

|   |  |
|---|--|
| RECEIVER                                    |  |
| Type  | Superheterodyne, dual downconversion   |
| Noise Figure (Total Receiver)               | ≤ 2.0 dB   |
| Linear Dynamic Range @2.0 µs                | ≥ 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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