SELEX
Sistemi Integrati

Gematronik Weather Radar Systems

METEOR 600C / 635C WEATHER RADAR

The METEOR 600C and 635C systems set the benchmark in weather radar technology and cost effectiveness. These systems are particularly suitable for meteorological services covering moderate distances and precipitation conditions in mid-latitude regions like Europe, North-America and northern Asia.

The METEOR 600C and 635C combine cutting-edge technologies with straight-forward and reliable implementation. Both METEOR C-Band systems are supplied with GDRX Digital Receiver & Signal Processor and Rainbow® 5, the most up-to-date radar software package for meteorological users. They

ensure optimum data quality for the accurate measurement of rain rates, precise detection of severe weather phenomena as well as tracking and nowcasting of such events.

The METEOR 600C baseline configuration includes a 250 KW transmitter. Alternatively, the METEOR 635C boosts the peak power to more than 350KW. It is driven by a solid-state modulator with graceful degradation providing fault-tolerant operation and higher system availability.

Both the METEOR 600C and METEOR 635C are available with single or dual polarization (DP). The dual polarization option enhances the measurement of precipitation intensity and makes way for the categorization of different types of hydrometeor like drizzle, rain, hail and snow. Thanks to its high-powered transmitter, the METEOR 635C operates in simultaneous DP mode with almost no loss of sensitivity compared to conventional 250KW single-polarized systems.

METEOR PRODUCT LINE ADVANTAGE

- Optimized for Rainbow® 5, the most advanced meteorological software available on the market today
- Cutting-edge 16 bit signal processor GDRX®
- Dynrex dual channel receiver technology for extended dynamic range
- Unattended remote operation 24h a day, 365 days a year
- Long-life, state-of-the-art technologies
- 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 configuration

METEOR 600C / 635C SYSTEM ADVANTAGE

- High-end DWR with unparalleled price-performance ratio
- Proven magnetron technology
- Graceful degradation modulator
- EU RTTE Directive compliance 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
- Optimized for high sensitivity in the medium to long range
- Simultaneous Dual Polarization Capability available with both systems, and with a minimum loss of sensitivity due to increased transmitter peak power in METEOR 635C



TECHNICAL DATA

SYSTEM

	METEOR 600C	Meteor 635C
Operating Frequency Range	5200 – 5800 MHz (C-Band)	
Pulse Modes	Up to 4: Short (SPM), Medium 1, Medium 2, Long (LPM)	
Pulse Width	0.5 – 2.0 µs, selectable	0.4 - 2.0 µs, selectable
Default Pulse Width	0.5 µs (SPM), 0.83 µs; 1.66 µs; 2.0 µs (LPM)	0.8 µs (SPM), 0.83 µs; 1.66 µs; 2.0 µs (LPM)
Minimum Range Resolution @ SPM	75 m	
Pulse Repetition Frequency [PRF]	250 – 1200 Hz, selectable depending on Pulse Width Mode	250 - 2000 Hz, selectable depending on Pulse Width Mode
Maximum Unambiguous Range With 2nd Trip Option	125 – 500 km 150 – 1000 km	75 – 500 km 150 – 1000 km
Typical Operational Range	200 km	
Maximum Unambiguous Velocity @ 5640 MHz - single PRF - dual PRF (4:5 staggering)	 ± 15.9 m/s ± 63.8 m/s	 ± 26.6 m/s ± 106.3 m/s
Sensitivity – Reflectivity/Rain Rate - 125 km, SPM -- 500 km, LPM	 9.9 dBZ / 0.15 mm/h 9.9 dBZ / 0.15 mm/h	 7.8 dBZ / 0.12 mm/h 3.5 dBZ / 0.06 mm/h
Clutter Suppression Capability	> 45 dB	
Data Output – single polarization [SP] (standard)	Reflectivity (UZ,CZ), Radial Velocity (V), Spectrum Width (W) simultaneously	
Additional Data Output - dual polarization [DP] (option)	Differential Reflectivity (ZDR), Differential Phase Shift ($_{DP}$), Specific Differential Phase Shift (K_{DP}), Polarimetric Correlation Coefficient $_{()HV}$ simultaneously. Linear Depolarization Ratio (LDR) on request	

ANTENNA	CLP10	CLP07	CLP05
Type	Parabolic, prime-focus reflector with elevation-over-azimuth pedestal		
Reflector Diameter	4.3 m (default)	6.1 m (opt.)	8.5 m (opt.)
Minimum Gain	45 dB	47 dB	50 dB
Maximum Half Power Beam Width	1.0°	0.7°	0.55°
Step Response Time - for 2° step ± 0.1°	1.0 s	1.5 s	1.5 s
Polarization – SP (standard) / DP (option)	Horizontal / Horizontal and vertical		
Angle Span	0º – 360º continuous in azimuth, - 2º – + 182º in elevation		
Angular Positioning Accuracy	± 0.1º		
Scanning Speed	0.2 – 6 rpm		

RADOME	6.7 m (default)	9.1 m (opt.)	11.8 m (opt.)
Type	Sandwich, fiberglass with polyurethane foam core; quasi-random panel cut		
Transmission Losses – one-way, dry surface	0.3 dB		

TRANSMITTER	TXC 600	
Type	Coaxial Magnetron with solid state, IGBT-switched modulator	
Peak Power	METEOR 600C : 250 KW	METEOR 635C :350 KW

RECEIVER	RXC 600	
Type	Superheterodyne, dual down-conversion	
Minimum Discernable Signal	-111 dBm	-113 dBm
Noise Figure	3 dB	
Linear Dynamic Range @ LPM	105 dB	

DIGITAL RECEIVER & SIGNAL PROCESSOR	GDRX®
Type	Modular, multi-channel digital receiver based on Compact PCI, connected to commercial-off-the-shelf industrial PC as signal processor
Intermediate Frequency (IF)	60 MHz
IF Sampling – SP (standard) / DP (option)	2 parallel channels in SP / 2 x 2 parallel channels in DP, 80 MHz, 16 Bit ea.
Maximum Number of Processed Range Bins	Default: 2500, more on request
Minimum Processing Resolution	30 m
Processing Mode	Multi-lag autocorrelation with pulse-pair or Discrete Fourier Transform (DFT/FFT)
Clutter Filters	16 Time domain, 16 Frequency domain

MAINTENANCE SOFTWARE	Ravis®
Recommended Computer Platform	Commercial Notebook, 1.8 GHz, 1 GB RAM, 60 GB HD
Operating System	Linux or Windows

METEOROLOGICAL USER SOFTWARE	Rainbow®5
Recommended Computer Platform	HP workstation or Commercial PC
Operating System	Unix, Linux or Windows

SELEX Sistemi Integrati GmbH
Raiffeisenstrasse 10
41470 Neuss, Germany
Tel: +49 (0) 21 37-782-0
Fax: +49(0)2137-782-11
info@gematronik.cominfo@selex-si.dewww.gematronik.comwww.selex-si.de

This publication is issued to provide outline information only and is supplied without liability for errors or omissions. We reserve the right to modify or revise all or part of this document without notice.

The copyright in this document is owned by the companies of SELEX Sistemi Integrati and may not be reproduced without written consent.

© SELEX Sistemi Integrati GmbH

Ref.: 1706101415