R&S®TH1 LIQUID-COOLED TRANSMITTER SERIES

Specifications

Model overview

UHF DTV models			
Number of amplifiers per transmitter	**Output power (AVG) for COFDM**	**Dimensions (W x H x D)**	**Possible MultiTX configurations per rack**
1	1.2 kW	600 mm × 2000 mm × 1100 mm (78.74 in × 23.62 in × 43.31 in)	up to 4 transmitters
2	2.4 kW		
3	3.6 kW		
4	4.8 kW		up to 3 transmitters
5	6.0 kW		up to 2 transmitters
6	7.2 kW		
8	9.6 kW		no MultiTX configuration

Data Sheet | Version 01.00

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General Specifications

Frequency range	UHF band V/IV	470 MHz to 700 MHz (700 MHz to 862 MHz on request)
Maximum installation height		2000 m above sea level (higher on request)
Operating temperature range	indoor	+1 °C to +45 °C (indoor)
	heat exchanger	≤ +45 °C
Relative humidity (max.)	indoor	95 %, noncondensing; 90 %, noncondensing (with R&S®SCP100 option)
Cooling concept		liquid-cooling of all power components (power amplifiers incl. power supplies, power combiner)
Dissipated heat into the room	per transmitter	< 500 W (1 to 3 amplifiers) ≤ 5 % (for 4 amplifiers or more)
Supply voltage		400 V/230 V, 4 wires + PE, (L1/L2/L3/N/PE) ±15 %, 50 Hz to 60 Hz ± 5 %
Mains power factor (PF)		> 0.95
Mains harmonics		I_{THD} < 20%
Immunity	to fast transient and burst (IEC61000-4-4)	< 4 kV (AC mains supply) < 1 kV (signal inputs)
	to surges (IEC61000-4-5)	symmetrical: < 4 kV (e.g. L1-N) asymmetrical: < 2 kV (e.g. L1-L2)
VSWR		s ≤ 1:1.5 (with full power) 1:1.5 ≤ s ≤ 1:3.0 (with reduced power)
Noise	per transmitter	< 60 dBA at 30 °C (indoor) < 45 dBA at 20 °C (outdoor)
RF output connector		EIA 1 ⅝ or EIA 3 ⅛ (depending on number of amplifiers)

Digital TV specifications

Standards		DVB-T, DVB-T2
Channel bandwidth	DVB-T, DVB-T2	6 MHz, 7 MHz, 8 MHz
Feeding interfaces	DVB-T, DVB-T2	2 × TSoIP (Gigabit Ethernet), 2 × ASI (BNC, 75 Ω)

Synchronization

Reference Interfaces		
Reference input	1 pps	1 Hz, TTL (BNC)
Reference via IP networks	precision time protocol (PTP)	PTPv2
GPS receiver	optional	

Monitoring and control

Local operation		via web interface (HTML5)
		exciter displays
	optional	system touch display
	optional	via smart devices (iOS, Android), provided by operator
Remote operation		SNMPv2
		via web interface (HTML5)
	optional	HTTPS (TLSv1.2 or older)
Parallel remote operation	optional	floating contacts for messages and commands

Protection mechanisms

Monitored States	on transmitter level	• mains • liquid temperature (inlet and outlet) • liquid flow • liquid pressure • RF output power (forward and reflected) • modulation inputs • main state of components
	on amplifier level	• mains • output (forward and reflected) • temperature • overvoltage • transistor fail • RF input fail • RF output fail • transistor currents • reflection • DC and AC voltages • PSU fail

Standards and norms

General standards		EN 300019-1-3 environmental conditions, indoor class 3.2 red. temperature range/noncondensing, outdoor class 3.2 red. temperature range
EMC standards		EN 301489-1/-53 electro magnetic compatibility
		EN 302296 radio spectrum (with bandpass filter)
		EN 61000-3-2 mains harmonics (<16 A)
		EN 61000-3-12 mains harmonics (>16 A)
Safety standards		EN 60215 safety requirements for radio transmission equipment (VDE0866/IEC 215)
		EN 62368 safety requirements

Ordering information

Designation	Type	Order No.
Liquid-cooled transmitter	R&S®TH1	2512.0150K02

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Certified Quality Management ISO 9001
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