

# High-Power Tubed FM Transmitters NR410R1, SR240B1

**5 kW, 10 kW or 20 kW  
RF output power in tube  
technology**

## Applications, characteristics

NR410R1 and SR240B1 are well-proven, tubed VHF transmitters used at many broadcasting stations. In addition to simple design and excellent serviceability, the transmitters feature great ease of operation and high power at a favourable price. An automatic tuning unit for six preset frequencies available as an option (PRESET function) permits (n+1) solutions.

## Main features

- All transmitter components including power supply unit and harmonics filter in one rack
- Automatic tuning of output stage for (n+1) configurations (optional)
- Long-life tubes from different manufacturers:
  - 10 kW: RS 2068 or TH 345
  - 20 kW: 4CX20000C
- FM Transmitter SU 125 used as an exciter
- High efficiency ( $\geq 55\%$ )
- Full output power up to VSWR of 1.5, above that value transmitter shutdown after three unsuccessful switch-on attempts
- Grounded-grid circuit requiring no neutralization adjustment
- Two tuning elements only thanks to broadband grid circuit
- Simple channel change from front panel without modification or exchanging of components

20-kW Transmitter  
SR240B1 (photo 40514)



- Simple and clear design
- High service-friendliness
- Nonvolatile fault memory for fast elimination of faults
- Full remote-control capability
- Built-in air filter (20 kW transmitter)
- Three-phase AC supply connector

## The advantages at a glance

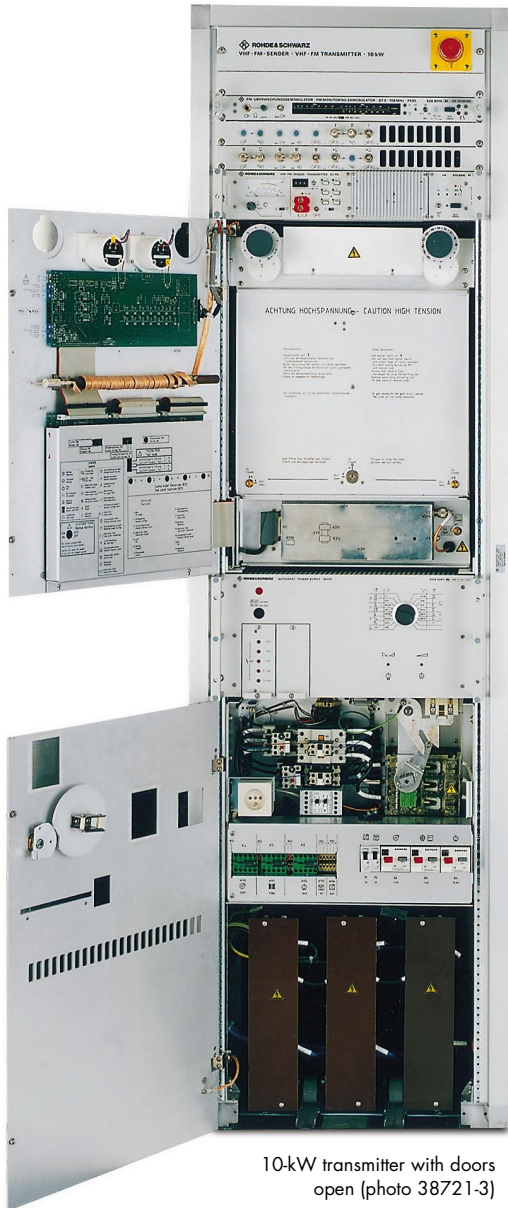
- Simple servicing due to detailed fault indication and easy access
- Little space requirement through compact design
- Suitable for all standby configurations including (n+1) systems

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## Specifications

### Type-specific data

	NR410R1	SR240B1
Output power	5/10 kW	10/20 kW
Preamplifier	200 W	800 W
RF connector	1 <sup>5</sup> / <sub>8</sub> " EIA	3 <sup>1</sup> / <sub>8</sub> " EIA
Output impedance	50 Ω	50 Ω
VSWR	≤1.5	≤1.5
(if VSWR >1.5, transmitter shutdown after three unsuccessful switch-on attempts)		
Harmonic suppression	≥70 dB	≥73 dB
Spurious emissions	≤1 μW	≤1 μW
Power supply	three-phase, 400/230 V ±10%	



10-kW transmitter with doors open (photo 38721-3)

Power consumption (without fans)	18 kW	33 kW
Power factor $\lambda$ (=fundamental of current x cos $\phi$ )	≥0.95	≥0.95
Overall dimensions		
Width	582 mm	873 mm
Height	2026 mm	2026 mm
Depth	1000 mm	1000 mm
Weight	425 kg	510 kg

### Frequency, modulation and transmission characteristics

see FM Transmitter SU125

### Built-in measurement and test facilities

Meter with testpoint selector for	forward and reflected power $V_{G1}$ , $V_{G2}$ , $V_A$ , $I_{G2}$ , $I_A$ , filament power, preamplifier (voltage and current, forward and reflected power), outlet air and difference temperature)
In-service testing	threshold: $I_{G2}$ , $I_A$ , outlet air and difference temperature, forward and reflected power
RF testpoints	output stage and exciter with BNC connector on front panel, preamplifier with BNC connector after opening front door
RF interfaces	exciter, preamplifier, output stage

### Remote control and remote signalling

connectors in compliance with ARD and DBP standard specifications for transmitter standby systems

### General data

Cooling	forced air, built-in fan, directed air
Max. installation altitude	3000 m above sea level
Rated temperature range	+5 to +45°C
Operating temperature range	-10 to +45°C

## Ordering information

Please specify the desired transmitter concept (including cooling and standby) when requesting a quotation.



Tubes from different manufacturers may be used:  
left: RS2068 (Siemens) for 10-kW transmitter  
right: 4CX20000 (Eimac) for 20-kW transmitter  
(photo 37915-1)