

SIEMENS

**Siemens – worldwide supplier
of complete transmitter stations**



Siemens transmitters –



communication medium for the world

News, information, entertainment – a colorful world of sights and sounds borne on the airwaves. But much remains to be done before all the world's people can enjoy its benefits to the full.

That is why new and more powerful transmitters are being built on every continent. Why radio and television transmission networks are being expanded in every corner of the globe. And why Siemens can be found where the growing is – around the world.

As one of the world's largest electrical engineering companies, Siemens has long pioneered in the field of transmitter development. To date, we've installed well over a thousand communication and broadcast transmitters throughout the world. Included in this number are many national networks. Complete with power supply facilities, fully equipped radio and television studios, and custom-planned antenna systems. And backed by the technical skills of a dependable, worldwide service organization.

Siemens transmitters in 50 countries

Europe

Austria
Bulgaria
Denmark
Germany
Great Britain
Italy
Luxembourg
Norway
Poland
Portugal
Spain
Sweden
Switzerland
Yugoslavia

Africa

Algeria
Congo
Dahomey
Egypt
Ghana
Guinea
Libya
Morocco
Nigeria
South Africa
Sudan
Tunisia
Zaire

Asia

Abu Dhabi
Afghanistan
India
Indonesia
Iran
Korea
Lebanon
Oman
Pakistan
Philippines
Saudi Arabia
Sri Lanka
Taiwan
Turkey
Vietnam
Yemen

Australia

Latin America

Argentina
Brazil
Chile
Columbia
Cuba
Mexico



Studios to antennas – a comprehensive product line

Siemens is a leader in virtually every field of electrical engineering. Our products and projects run the gamut from components to computers, telephones to all-electronic telephone exchanges, small-size motors to nuclear power stations, time switches to plant automation, fire alarms to railway signal boxes. As for transmitter construction, we've been in the business since 1920.

Radio and television transmitter stations are intricate complexes whose many parts – transmitter, antenna, power supply, and switching equipment as well as the telemetry, remote supervision, and supervisory control systems so indispensable to a major facility of this type – must interface smoothly and efficiently, without fault.

A key task in the planning and construction of transmitter stations is the selection and positioning of antennas. This entails pinpointing the optimal transmission site, and deciding on a directional or omnidirectional antenna. In order to provide an optimum antenna system a complete study must be made of the propagation conditions.

A multitude of special cables is needed to interconnect the component parts of a transmitter station. These range from power cables for the power supply system to RF power feeders for supplying energy to the antenna. Often, programs can be transmitted from studio to antenna more economically by radio link. Here, too, Siemens has the required systems.

Every program broadcast from a transmitter must first be produced in a studio. Studio production equipment is as varied as the programs produced. It includes everything from the microphones and tape-recorders of the radio studio to the cameras, microphones, effect lighting, audio and video recording and cutting equipment, and mixing desks of a fully equipped television studio. And not to be forgotten are the systems "behind the screens" – the telephones, teleprinters, clock and signaling installations, and fire prevention equipment.

Our Product Line

Transmitter systems

Broadcasting transmitters for medium & shortwave ranges.
Television transmitters for Bands III, IV/V and VI (12 GHz)

Antenna systems

Omnidirectional and directional antennas, antenna matching circuits, power dividers, transformation networks, aircraft warning lights, ground systems, open-wire feeder lines and coaxial cables.

Studio engineering and links

Studio equipment, program transmission equipment, program and voice links between studio and transmitter.

Power supply

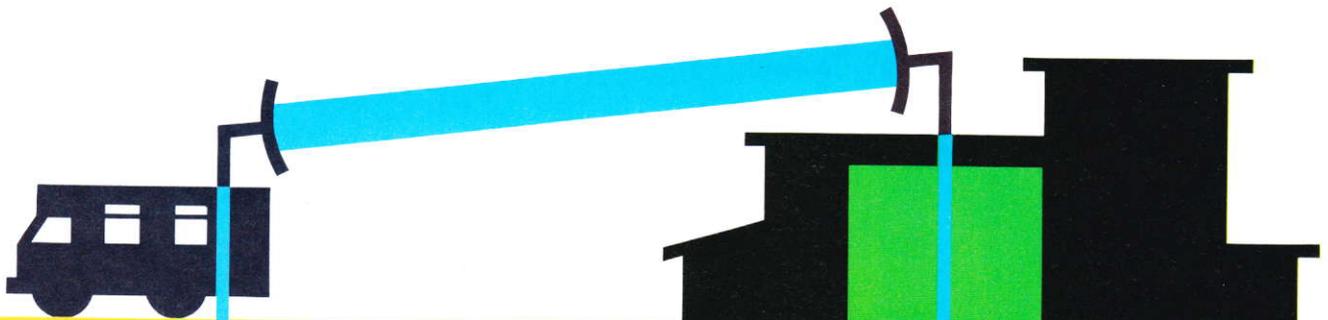
Diesel generators for continuous or stand-by operation, automatic switching systems, high- and low-voltage distribution, transformers.

Mobile equipment

Transmitters up to 10kW, antenna masts, diesel generators, studios.

Auxiliary equipment

Control desks, supervisory equipment for transmitter input and output, test equipment for VF and RF systems, cooling equipment, distilling equipment, telephone and clock installations, teleprinters, signaling systems.



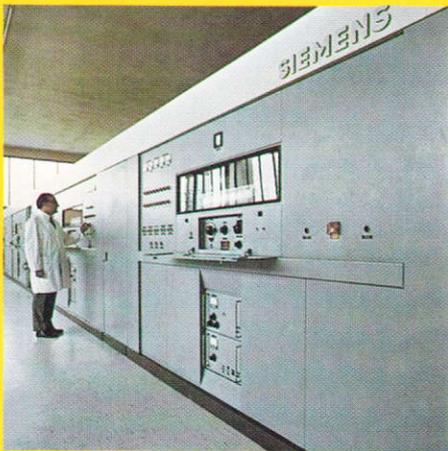
Production of a music program in the broadcasting studio. The sound engineer at the mixing desk controls several microphones to obtain optimum sound quality.



Control desk of a mobile TV station. The control equipment required for transmission "from the scene" is accommodated here in a minimum of space.



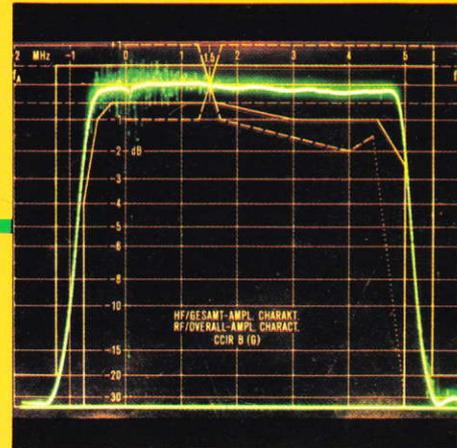
All transmission and power cables are accommodated on drums in the rear of the van, ready for connecting.



Front view of a 600 kW medium-wave transmitter.



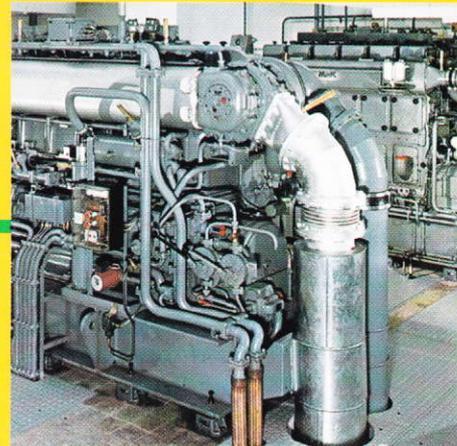
Detail of a TV transmitter control desk. Here, incoming and outgoing audio and video signals are extracted and supervised.



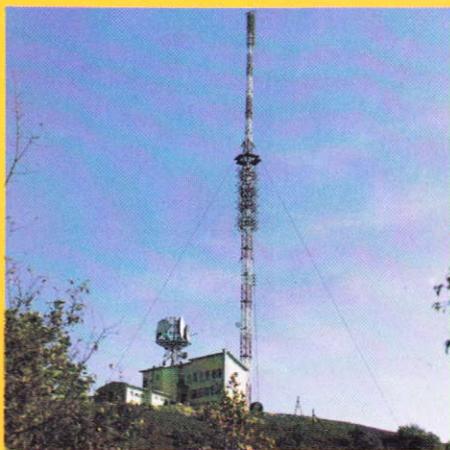
Essential functions are monitored by means of oscilloscope and other high-quality test equipment.



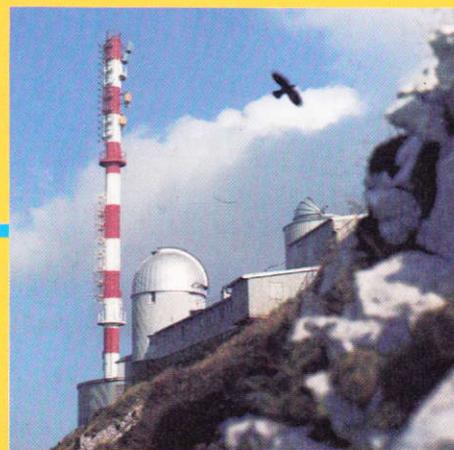
Modern metallized ceramic transmitter tube capable of generating output power of 100 kilowatts at frequencies of up to 130 MHz.



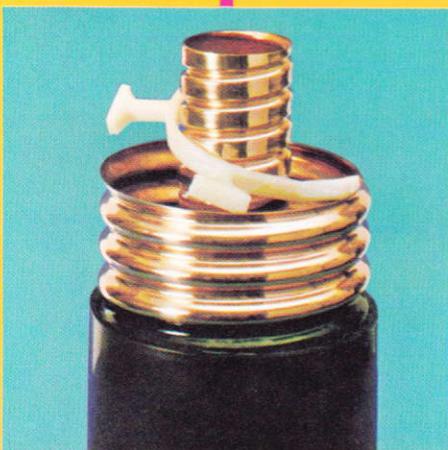
Standby diesel generating set for 1000 kVA, sufficient for the operation of a 300 kW transmitter with all auxiliary systems.



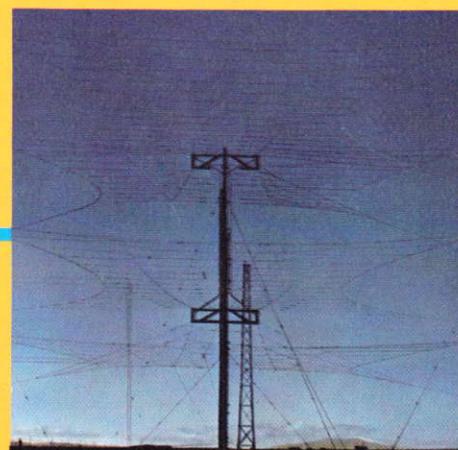
TV and VHF transmitter station with radio relay receiving antenna. Radio relay is often used as the feeder route in cases where cables would be difficult to lay.



TV and VHF antenna tower in the Alps, 1800 meters above sea level. A 50-meter tubular mast supports Band III antennas and Band II triplexed antennas for three VHF-FM-programs.



RF coaxial cable with helix spaced insulation and corrugated copper tube. This cable is suitable for use as an antenna feeder for outlet powers of up to 500 kW.

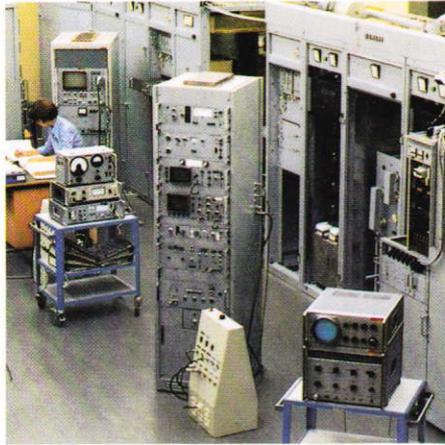


Shortwave high-powered antenna with very high gain across the entire shortwave range.

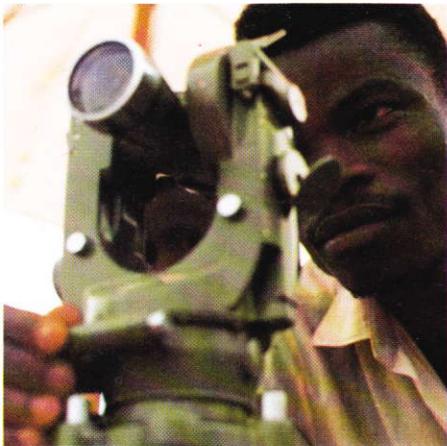
All of these systems and equipments – studio to antenna – are planned and supplied by Siemens. This total delivery capability, plus our many years of experience in handling major projects and our long association with reliable subvendors the world over, has made Siemens the partner of choice in the field of transmitter construction, as in every sector of electrical engineering.



Planning at the drawing board is the first stage of every project.



All subcomponents are assembled by experienced installation teams. The total transmitter installation is thoroughly tested before commissioning.

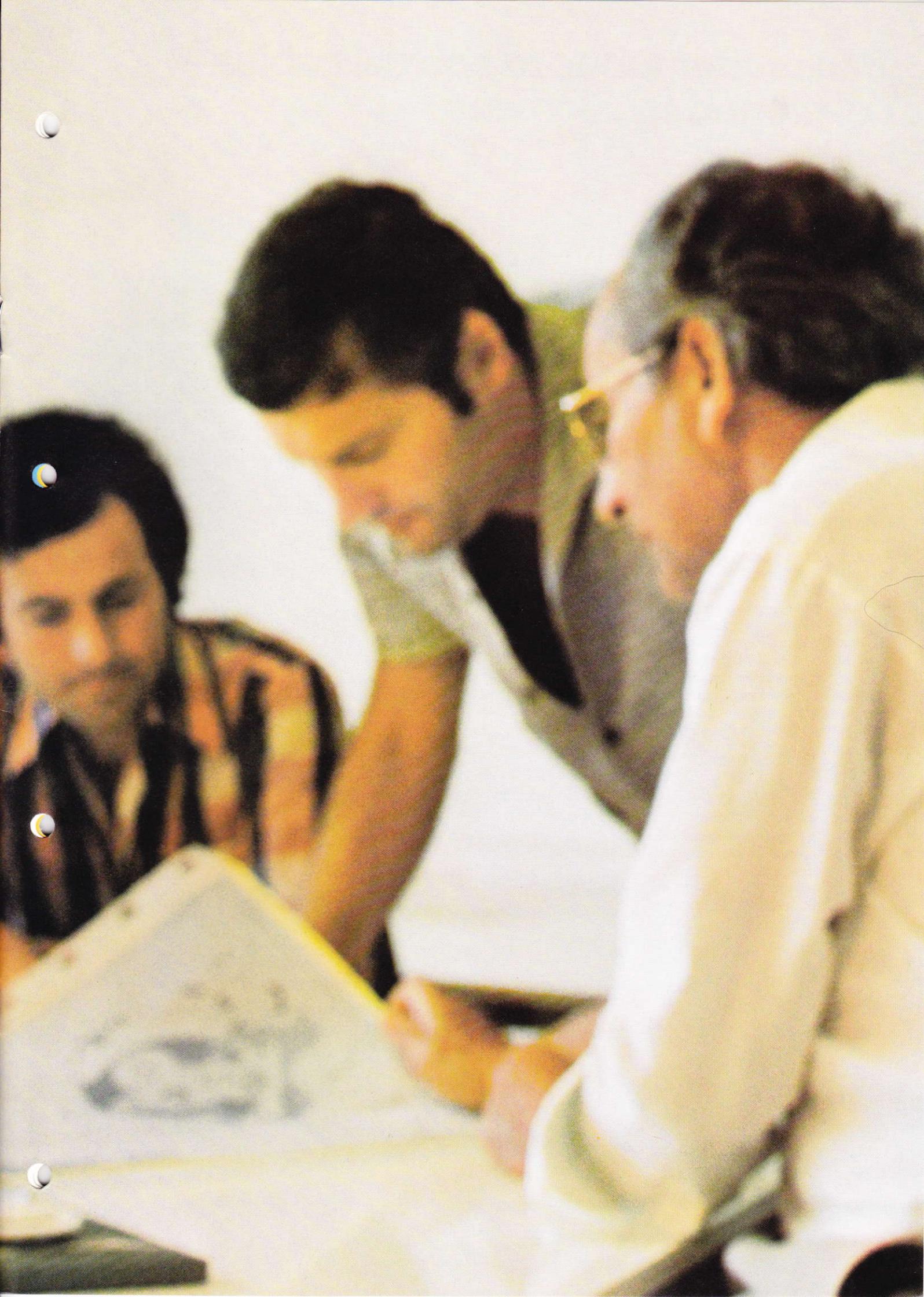


On major projects outside Germany, our experts work together with experienced local subvendors. Building contracts, in particular, are usually given to indigenous firms.



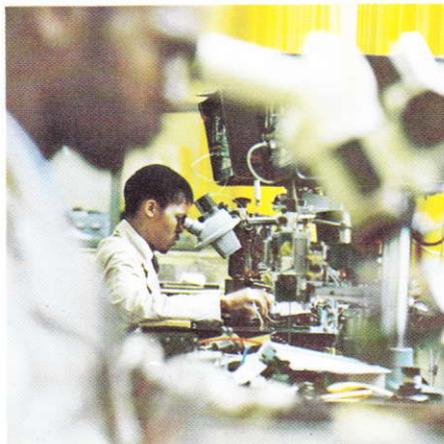
Laying the transmitter cable to the antenna – one example of many tasks that can be handled by local personnel.



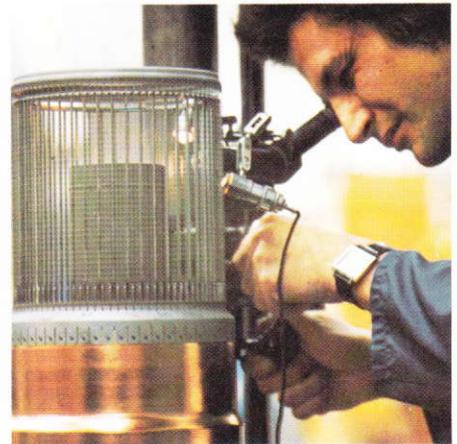


Transmitter tubes to coaxial cables – developed by Siemens

Siemens not only builds transmitters from the ground up but knows transmitters inside and out. Every Siemens-built transmitter station represents, in addition to the expertise born of long experience in transmitter construction, the fruits of a research and development program that embraces every sector of electrical engineering. Transmitter construction benefits in many ways from this general R&D effort, whether it be directed towards miniaturizing electronic components, redesigning satellite transmitter tubes, developing new transmission, antenna, or cable systems, refining frequency measuring techniques, or improving the efficiency of process control computers. This valuable reservoir of know-how is further expanded by the exchange of ideas between our technical experts and the feedback of information from our installation and service personnel throughout the world.



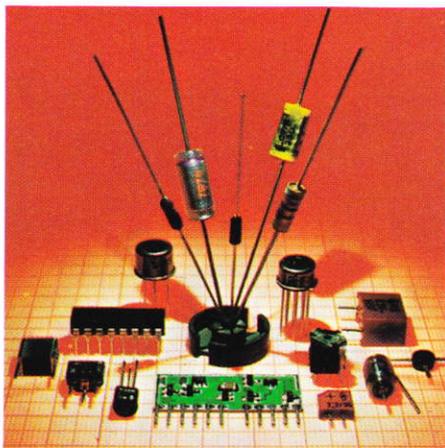
Siemens components are manufactured in many countries around the world.



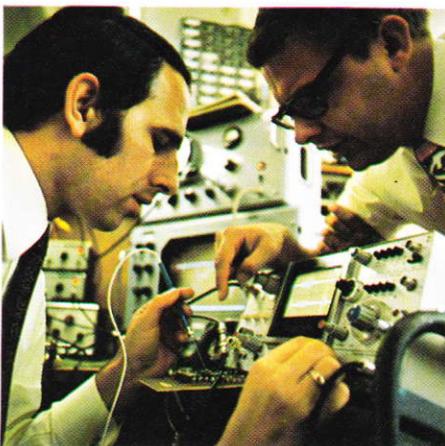
Installation of a 600 kW transmitter tube for a medium-wave transmitter.



44,000 Siemens employees work in Munich, which is also Company headquarters for telecommunications systems development.



Virtually all Siemens electronic components – from transistors to transmitter tubes – are developed and manufactured in our own laboratories and plants.



New components, design styles, and manufacturing processes constantly provide development engineers with new incentives.

Transmitter technology pushed to the limits: a 1.5 MW/200 MHz system for a particle accelerator. Fifteen identical cavities are connected in a hybrid circuit to form three 500 kW amplifiers.



Siemens – worldwide supplier of complete transmitter stations

Siemens is the largest German manufacturer of electrical engineering products. Our sales offices and representatives are found on every continent, in more than 450 cities and 130 countries. Nearly one in three of our 300,000 employees works outside Germany. In 1974, international business accounted for more than half of our total orders. Siemens production, too, is worldwide: 40 of our 90 manufacturing plants are located outside Germany.



Wherever a major project is tackled – a power station, a telephone or teleprinter network, a satellite station or transmitter station – Siemens consulting and planning engineers cooperate with customer technical staff in finding the solution that offers the greatest technical and cost efficiency, and in preparing a detailed offer and project schedule. During actual execution of the project, German experts continue to cooperate with local subvendors.

Our after sales service network is as extensive as our sales network. Maintenance by Siemens service technicians is your best guarantee of a system that's always in the peak of condition.

Siemens is constantly consolidating its position as one of the world's leading producers of electrical engineering equipment – by the superior quality of its products, its comprehensive know-how, and its ability to be on the spot, in any spot in the world.

Everywhere in the world, our Customer Service personnel – equipped with the latest technical devices and a store of essential spare parts – guarantee the smooth functioning of Siemens systems, and immediate help in eliminating faults.

Final testing of an amplifier.
All equipment manufactured outside
Germany complies fully with the
high Siemens standard of quality.



Wherever Siemens erects a
transmitter, station operating
technicians are given a comprehensive
course of training in which they
are thoroughly familiarized with all
equipment and systems.



Siemens Companies and Representatives abroad

Europe

Austria

Siemens Aktiengesellschaft
Österreich
A-1030 Wien
Apostelgasse 12
(A-1031 Wien, Postfach 326)
Tel. 72 93-0, Telex 11866

Belgium

Siemens Société Anonyme
Chaussée de Charleroi 116
B-1060 Bruxelles
Tel. 5 37 31 00, Telex 21 347

Bulgaria

RUEN
Technisches Beratungsbüro
der Siemens AG
uliza Nikolai Gogol 5/
Boulevard Lenin
BG-1504 Sofia 4
Tel. 45 70 82, Telex 22 763

Czechoslovakia

EFEKTIM
Vertretung ausländischer
Gesellschaften in der CSSR
Václavské náměstí 1
CS-11000 Praha 1
(P.O.B. 457)
Tel. 25 84 17, Telex 122 389

Denmark

Siemens Aktieselskab
Borupvang 3
DK-2750 Ballerup
Tel. 65 65 65, Telex 35 313

Finland

Siemens Osakeyhtiö
Mikonkatu 8
SF-00101 Helsinki 10
(PL 8)
Tel. 1 07 14, Telex 12 465

France

Siemens S.A.
B.P. 109
F-93203 Saint-Denis CEDEX 1
Tel. 8 20 61 20, Tx. 62 0853

Great Britain

Siemens Ltd.
Great West House,
Great West Road
Brentford TW8 9DG
Tel. 5 68 91 33, Telex 23 176

Greece

Siemens Hellas E.A.E.
Voulas 7
Athen 125 (P.O.B. 601)
Tel. 32 93-1, Telex 216 291

Hungary

INTERCOOPERATION Rt.
Siemens-Kooperations-
büro
Böszörményi út 9-11
H-1126 Budapest
(P.O.B. 1525)
Tel. 15 49 70, Telex 224 133

Iceland

Smith & Norland H/F
Nóatún 4
Reykjavik (P.O.B. 519)
Tel. 2 83 22, Telex 20 55

Ireland

Siemens Ltd.
8, Raglan Road
Dublin 4
Tel. 68 47 27, Telex 5341

Italy

Siemens Elettra S.p.A.
Via Vittor Pisani, 20
I-20124 Milano
(Casella Postale 4183)
Tel. 62 48, Telex 36 261

Luxemburg

Siemens Société Anonyme
Rue Glesener 17
Luxembourg (P.B. 1701)
Tel. 49 711-1, Telex 3430

Netherlands

Siemens Nederland N.V.
Prinses Beatrixlaan 26
Den Haag 2077
(Postbus 1068)
Tel. 78 27 82, Telex 31 373

Norway

Siemens A/S
Østre Aker Vei 90
N-050 Oslo 5
(Postboks 10, Veitvet)
Tel. 15 30 90, Telex 18 477

Poland

PHZ Transactor S.A.
PL-00-950 Warszawa
(P.O.B. 30)
Tel. 49 72 62, Telex 813 288

Portugal

Siemens S.A.R.L.
Av. Almirante Reis, 65
Lisboa-1 (Apartado 1380)
Tel. 53 88 05, Telex 12 563

Rumania

Siemens Birou
de consultatii tehnice
Strada Edgar Quinet 1
R-7 Bucuresti 1
Tel. 15 18 25, Telex 11 473

Spain

Siemens S.A.
Orense, 2
Madrid-20 (Apartado 155)
Tel. 4 55 25 00, Telex 27 769

Sweden

Siemens AB
Norra Stationsgatan 63-65
Stockholm
(Fack, S-10435 Stockholm 23)
Tel. 22 96 80, Telex 1880/81

Switzerland

Siemens-Albis AG
CH-8001 Zürich
Löwenstraße 35
(CH-8021 Zürich,
Postfach 605)
Tel. 23 03 52, Telex 52 131

Turkey

Simko Ticaret ve Sanayi A.S.
Meclisi Mebusan Cad. 55/35
Istanbul (Findikli)
(P.K. 64 Tophane)
Tel. 45 20 90, Telex 22 290

U.S.S.R.

Ständige Vertretung der
Siemens AG in Moskau
Internationales Postamt
Postfach 77
SU-Moskau
Tel. 2 23 52 57, Telex 74 13

Yugoslavia

Generalexport
Masarikova 5/XV
YU-11000 Beograd
(YU-1101 Beograd
Poštanski fah 223)
Tel. 6 84-866, Telex 11 287

Africa

Algeria

Siemens Algérie S.A.R.L.
3, Viaduc du Duc des Cars
Alger (B.P. 224, Alger-Gare)
Tel. 63 95 47, Telex 52 817

Egypt

Siemens Resident Engineers
P.O.B. 775, Zamalek
Cairo/Egypt
Tel. 3 56 61, Telex 321

Ethiopia

Siemens Ethiopia Ltd.
Ras Bitwoded Makonen
Building
Addis Ababa (P.O.B. 5505)
Tel. 15 15 99, Telex 21052

Libya

Assem Azzabi, Tariq Building
1, September Street
Tripoli (P.O.B. 2583)
Tel. 4 15 34 Telex 20029

Morocco

SETEL
Société Electrotechnique
et de Télécommunications S.A.
Rue Lafuente
Casablanca
Tel. 26 13 82/84, Telex 21914

South African Republic

Siemens (Proprietary) Limited
Siemens House
Corner Wolmarans and Biccard
Streets, Braamfontein
Johannesburg 2000
(P.O.B. 4583)
Tel. 7 25 25 00, Telex 587 721

Sudan

National Electrical &
Commercial Company (NECC)
Khartoum (P.O.B. 1202)
Tel. 8 08 18, Telex 642

Tunesia

Sitelec S.A. Société
d'Importation
et de Travaux d'Electricité
26, Avenue Farhat Hached
Tunis
Tel. 24 28 60, Telex 12 326

Zaire

Siemens Zaire S.P.R.L.
1222, Avenue Tombalbaye,
Kinshasa 1 (B.P. 9897)
Tel. 2 26 08, Telex 377

America

Argentina

Siemens S.A.
Av. Presidente
Julio A. Roca 530
Buenos Aires
(Casilla Correo Central 1232)
Tel. 30 04 11, Telex 121 812

Bolivia

Sociedad Comercial
e Industrial Hansa Ltda.
La Paz (Cajón Postal 1402)
Tel. 5 44 25, Telex 5261

Brazil

Siemens S.A.
Rua Cel. Bento Bicudo, 111
BR-05069 Sao Paulo
(Caixa Postal 1375),
Sao Paulo 1, SP)
Tel. 2 60 26 11, Telex 11-23681

Canada

Siemens Canada Limited
7300 Trans-Canada Highway
Pointe Claire, P.O. H9R 1C7
(P.O.B. 7300, Pointe Claire,
P.Q. H9R 4R6)
Tel. 695-7300, Telex 5 267 300

Chile

Gildemeister S.A.C.
División Siemens
Casilla 99-D
Santiago de Chile
Tel. 8 25 23, Telex sgo 392

Colombia

Siemens S.A.
Carrera 65, No. 11-83
Bogotá
(Apartado Aéreo 80150)
Tel. 6140 77, Telex 44 750

Mexico

Siemens S.A.
Poniente 116, No. 590
Mexico 15, D.F.
(Apartado Postal 15064)
Tel. 5 67 07 22, Telex 17 72 700

Uruguay

Conatel S.A.
Ejido 1690
Montevideo
(Casilla de Correo 1371)
Tel. 9173 31, Telex 934

U.S.A.

Siemens Corporation
186 Wood Avenue South
Iselin, New Jersey 08830
Tel. 4 94-1000
Telex WU 84-4491, 84-4492

Venezuela

Siemens S.A.
Apartado 3616
Caracas 101
Tel. 34 85 31, Telex 25 131

Asia

Afghanistan

Siemens Afghanistan Ltd.
Alaudin, Karte 3
Kabul (P.O.B. 7)
Tel. 4 14 60

Bangla Desh

Siemens Bangladesh Ltd.
74, Dilkusha Commercial Area
Dacca (P.O.B. 33)
Tel. 24 43 81, Telex 824

Burma

Siemens Resident Engineer
8 Attia Road
Rangoon (P.O.B. 1427)
Tel. 3 25 08, Telex 2009

Hong Kong

Jebson & Co., Ltd.
Prince's Building, 23rd floor
Hong Kong (P.O.B. 97)
Tel. 5 22 5111, Telex 73221

India

Siemens India Ltd.
Head Office
134-A, Dr. Annie Besant Road,
Worli
Bombay 400018 (P.O.B. 6597)
Tel. 37 99 06, Telex 112 373

Indonesia

P.T. Siemens Indonesia
Kebon Sirih 4
Jakarta (P.O.B. 2469)
Tel. 5 10 51, Telex 46 222

Iran

Siemens Sherkate
Sahami (Khass)
Kh. Takhte-Djamshid 32
Siemenshaus
Teheran 15
Tel. 6141, Telex 212 351

Iraq

Samhiry Bros. Co. (W.L.L.)
Abu Nawas Street
Baghdad (P.O.B. 300)
Tel. 9 00 21, Telex 2 255

Japan

Nippon Siemens K.K.
Furukawa Sogo Building,
6-1, Marunouchi, 2-chome
Chiyoda-ku
Tokyo 100
(Central P.O.Box 1144
Tokyo 100-91)
Tel. 2 14 02 11, Telex 22 808

Korea (Republic)

Siemens Electrical
Engineering Co., Ltd.
C.P.O. Box 3001
Seoul
Tel. 24 15 58, Telex 2329

Kuwait

Abdul Aziz M. T. Alghanim Co.
& Partners
Kuwait, Arabia (P.O.B. 3204)
Tel. 42 33 36, Telex 2 131

Lebanon

Ets. F.A. Kettaneh S.A.
(Kettaneh Frères)
Rue du Port
Beirut (P.O.B. 110242)
Tel. 22 11 80, Telex 20 614

Malaysia

Guthrie Eng. (Malaysia) Sdn. Bhd.
Electrical & Communications
Division
17, Jalan Semangat
Petaling Jaya/Selangor
(P.O.B. 30)
Tel. 77 33 44, Telex 37 573

Pakistan

Siemens Pakistan
Engineering Co. Ltd.
ILACO House,
Abdullah Haroon Road
Karachi (P.O.B. 7158, Karachi 3)
Tel. 5160 61, Telex 820

Philippines

Engineering Equipment, Inc.
Machinery Division,
Siemens Department
P.O.B. 7160 Airmail Exchange Office
Manila International Airport
Philippines 3120
Tel. 85 40 11/19, Telex EEC 3695

Saudi Arabia

E.A. Juffali & Bros.
Head Office
Jeddah (P.O.B. 1049)
Tel. 2 22 22, Telex 40 130

Singapore

Guthrie Engineering (Singapore)
Pte. Ltd.
Electrical
& Communications Division
41, Sixth Avenue,
Bukit Timah Road
Singapore 10
(P.O.B. 495, Singapore 1)
Tel. 66 25 55, Telex 21681

Syria

Syrian Import
Export & Distribution
Co., S.A.S. SIEDCO
Port Saïd Street
Damas (P.O.B. 363)
Tel. 1 34 31/33

Taiwan

Delta Engineering Ltd.
42, Hsu Chang Street,
8th floor
Taipei (P.O.B. 58497)
Tel. 3 61 02 55, Telex 21826

Thailand

B. Grimm & Co. R.O.P.
1643/4, Petchburi Road
(Extension)
Bangkok 10 (P.O.B. 66)
Tel. 52 40 81, Telex 2614

Yemen

Tihama Tractors
& Engineering Co. Ltd.
Sana'a (P.O.B. 49)
Tel. 24 62, Telex 217

Australia

Australia

Siemens Industries Ltd.
544 Church Street, Richmond
Melbourne, Victoria 3121
Tel. 4 29 7111, Telex 30 425

New Zealand

Siemens Liaison Office
175 The Terrace
Wellington 1 (P.O.Box 4145,
G.P.O.)
Tel. 72 98 61, Telex 31233

Information and advice from our trading company, representative
or subsidiary in your country, or from

Siemens AG, UBB-V SA -

Postfach 80 17 09, Balanstraße 73, 8000 München 80, Federal Republic of Germany
Tel.: (0 89) 41 33-1, Telex 5 22 961, 5 22 962, 5 22 963, Telegrams: siemensbal muenchen

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