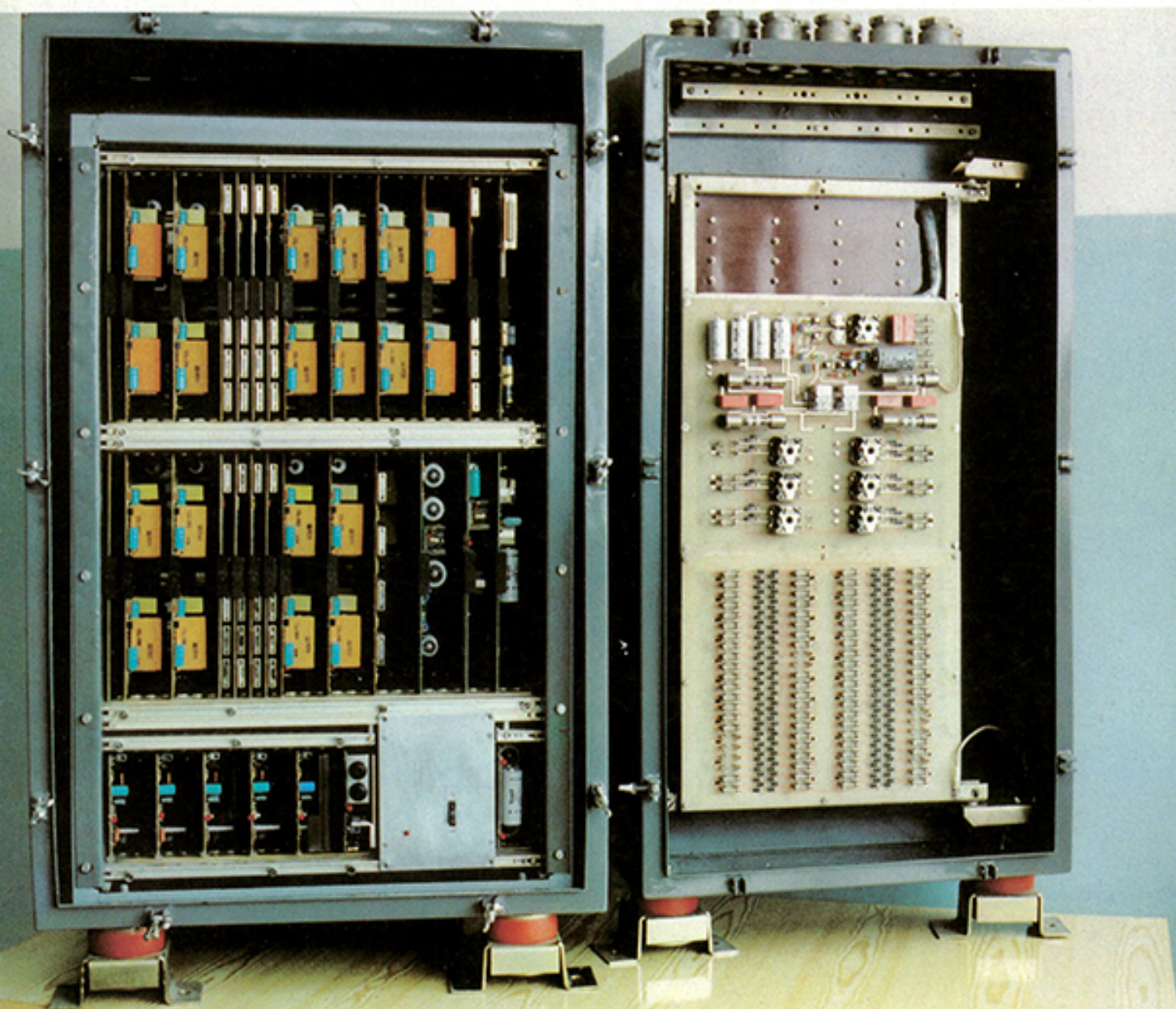




# POLISH TECHNICAL REVIEW







**SIGMA**

PUBLISHERS OF TECHNICAL PERIODICALS AND BOOKS SIGMA-NOT CO. LTD.

ul. Biela 4, 00-950 Warsaw, P.O. B. 1004, Tel: 31 93 65, Tlx 814877 WCT WA PL, Fax: 20 31 16. Issued in English

## CONTENTS

### CONTROL AND MEASURING EQUIPMENT

Electric power and energy adder remote readout systems . . . . .	2
An ultrasonic flowmeter . . . . .	4
Worker's energy expenditure meter . . . . .	5
Soil compressibility and unstraining parameters measuring instruments (patent) . . . . .	6
A pneumatic measuring sensor (patent) . . . . .	6
A piezoelectric acceleration sensor (patent) . . . . .	7

### ENVIRONMENTAL PROTECTION

A modern weedkiller . . . . .	8
New design of biological contact beds . . . . .	10
An agent for protecting wood against fungi . . . . .	12
Biological treatment of wastes (patent) . . . . .	13

### MACHINE BUILDING

Equipment for thermal gluing of the insulating systems of electric machines . . . . .	14
A magnetron sputtering device (patent) . . . . .	15
An artificial muscle (patent) . . . . .	16
A filtering and ventilating unit . . . . .	16
A vibrations-insulated squeeze riveter . . . . .	16
A power unit . . . . .	16
A metering micropump . . . . .	16

### MATERIALS ENGINEERING

Composite mineral fertilizers . . . . .	17
BRIEF NEWS . . . . .	cover, 13, 20, 21, 22
BOOKS . . . . .	23
INDEX FOR 1991 . . . . .	24
PRESS SERVICE . . . . .	I-VIII

#### Electric power and energy adder remote readout systems

A system has been developed which is designed for performing complex measurements of electric power consumption and monitoring and recording the total power load taken by a user. The system makes it possible to perform accurate account settlement cycles related to the supply of electric power and provides valuable statistical data on power network load distribution. It is possible to form various power system configurations, according to consumers' requirements. The system incorporates microprocessor-controlled equipment. For details see p. 2.

#### New design of biological contact beds

The development of equipment for the biological treatment of sewage consists, among other things, in creating better conditions for the activity of microorganisms. The Academy of Agricultural Technology, Olsztyn has been conducting since several years research in this field the result being new, original designs of biological beds, protected by Polish patents. The respective equipment has been subjected to various technical tests and can be used in sewage treatment plants. See article on p. 10.

#### Equipment for thermal gluing of the insulating systems of electric machines

The equipment for the thermal gluing of the insulating systems of electrical equipment designed by Polish experts has proved competitive with the immersion and dripping techniques used in the world. The thermal-glued insulating systems can be used in products in which the winding coils are wound directly on the stator poles and also in products where winding of coils is done outside the pack. See article on p. 14.

#### Composite mineral fertilizers

The Technical University, Wrocław, is conducting research on the application of mechanical working processes for obtaining mineral fertilizers. It has worked out several hundred formulas of fertilizers adapted to specific plants and soils. The possibility of making use of production wastes has been taken into account. The new methods of producing these fertilizers make it possible to take advantage of the troublesome chemical industry, metallurgical and coke industry wastes etc, which contain nutritional components for plants. See p. 17.

Chief editor: Andrzej Witkowski  
English editor: Ewa Karska  
Production manager: Alicja Dziewulska-Kijas  
Editorial secretary: Maria Bartochowska  
Proof-reader: Danuta Niedbalska

Subscription orders should be sent to our editorial office SIGMA-NOT.  
The price of one copy is 6. — US dollars. Our bank accounts are as follows:  
PBK III O/W-wa 370015-1573-139-11 Wydawnictwo Czasopism i Książek Technicznych SIGMA-NOT Spółka z o.o or BRE S.A. O/W-wa, Al. Jerozolimskie 44, No 400002-9944-139-171.

Front cover photo: An EACO-40 ship telephone exchange with distribution frame

Offset composition: "Fotoskład" Warsaw, Niecała 4a  
Printing: SIGMA-NOT Publishers, Warsaw  
Index No 36915