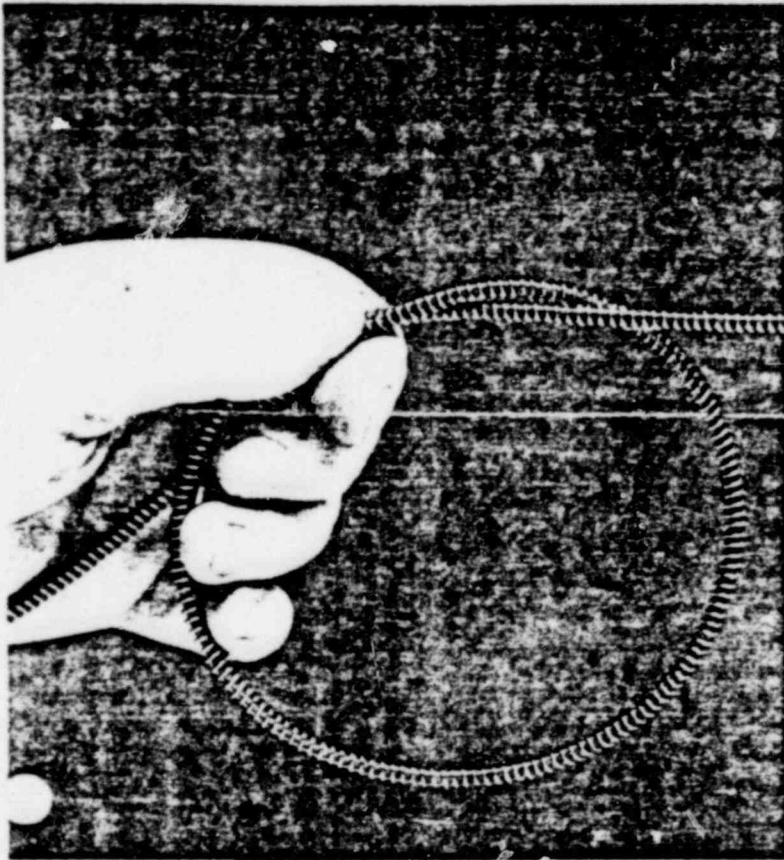


APPLICATION FOR LICENSE TO EXPORT NUCLEAR
MATERIAL AND EQUIPMENT (See Instructions on Reverse)

PDR

1. APPLICANT'S USE		a. DATE OF APPLICATION 9-13-79		b. APPLICANT'S REFERENCE QE-7986		2. NRC USE		a. LICENSE NO. KSNM01597		b. DOCKET NO. 11000838					
3. APPLICANT'S NAME AND ADDRESS a. NAME Reuter-Stokes, Inc. b. STREET ADDRESS 18530 South Miles Parkway c. CITY Cleveland STATE Ohio ZIP CODE 44128 d. TELEPHONE NUMBER (Area Code - Number - Extension) 216-475-3434						4. SUPPLIER'S NAME AND ADDRESS RIS (Complete if applicant is not supplier of material)									
5. FIRST SHIPMENT SCHEDULED			6. FINAL SHIPMENT SCHEDULED			7. APPLICANT'S CONTRACTUAL DELIVERY DATE			8. PROPOSED LICENSE EXPIRATION DATE 1 YEAR FROM DATE OF ISSUANCE			9. U.S. DEPARTMENT OF ENERGY CONTRACT NO. (If Known)			
10. ULTIMATE CONSIGNEE a. NAME Union Electrica b. STREET ADDRESS Velazquez, 157 c. CITY - STATE - COUNTRY Madrid -2 SPAIN						11. ULTIMATE END USE (Include plant or facility name) Union Electrica, S.A. Central Nuclear "Jose Cabrera" Almonacid de Zorita (Guadalajara) 11a. EST. DATE OF FIRST USE middle of 1980									
12. INTERMEDIATE CONSIGNEE a. NAME b. STREET ADDRESS c. CITY - STATE - COUNTRY						13. INTERMEDIATE END USE 13a. EST. DATE OF FIRST USE									
14. INTERMEDIATE CONSIGNEE a. NAME b. STREET ADDRESS c. CITY - STATE - COUNTRY						15. INTERMEDIATE END USE 15a. EST. DATE OF FIRST USE									
16. NRC USE		17. DESCRIPTION (Include chemical and physical form of nuclear material; give dollar value of nuclear equipment and components) Uranium 235 deposited as UO ₂ on internal surface of Reuter-Stokes Model RS-C6-0201-231 radiation detector. Each detector contains .0004 (grams) uranium. Figures at right are for the total of 2 detectors to be supplied. Value of each detector is \$4,550.00 each (U.S.)						18. MAX. ELEMENT WEIGHT 0.0008 grams 1979 SEP 20 PM 2 00 EXPORT/DATORY AND INTERNATIONAL SFGRDS		19. MAX. WT. % 93%		20. MAX ISOTOPE WT. .0008 grams		21. UNIT gram	
22. COUNTRY OF ORIGIN-SOURCE MATERIAL				23. COUNTRY OF ORIGIN-SNM WHERE ENRICHED OR PRODUCED				24. COUNTRIES WHICH ATTACH SAFEGUARDS (If Known)							
25. ADDITIONAL INFORMATION (Use separate sheet if necessary) See attached end-use statement 1143 141 7910120121															
26. The applicant certifies that this application is prepared in conformity with Title 10, Code of Federal Regulations, and that all information in this application is correct to the best of his/her knowledge. Joseph S. Scarpa															
27. AUTHORIZED OFFICIAL				a. SIGNATURE Joseph S. Scarpa				b. TITLE Special Manager							



RS-C6-0201-231 In Core Flux Probe

for use in your 1143 142
WESTINGHOUSE PWR

**Complete with Right Hand
or Left Hand Drive Cable**

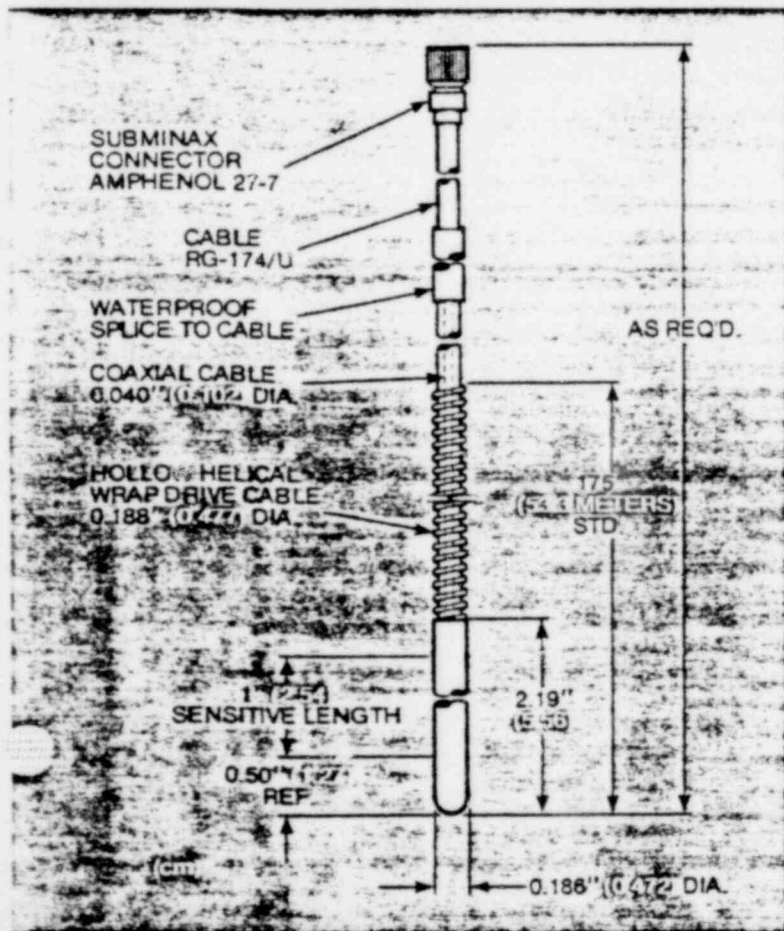
Combining the detector with the helical drive cable which exactly mates with your specific movable drive system, Reuter-Stokes offers the complete assembly ready for use.

In 1968, the RS-C6-0201-231 was developed by Reuter-Stokes for the flux mapping systems of Westinghouse-built reactors. It incorporates 14 years of in-core detector experience into an assembly specifically designed to traverse the multi path system smoothly, with accurate output signal and long detector lifetime. It is manufactured and tested to rigid QC requirements for commercial power reactors. Specific design and manufacturing features include:

1. Excellent insulation resistance at temperature providing minimal signal leakage and permitting use over a wide flux/temperature range.
2. Separate sealing of detector assembly and cable assembly to eliminate signal variation at temperature from gas expansion-migration.
3. Design details and proprietary methods of processing to insure high leakage resistance over a long detector lifetime.
4. Carefully matched, machined and bonded components to minimize the possibility of detector failure resulting from insertion and withdrawal.

Following is a partial listing of operating reactors where Reuter-Stokes in-core probes are installed or being installed:

Connecticut Yankee	Point Beach 1, 2
D. C. Cook 1	Prairie Island 1, 2
H. B. Robinson 2	Robert E. Ginna
Joseph M. Farley 1	San Onofre 1
Jose Cabrera 1	Surry 1, 2
North Anna 1, 2	Zion 1, 2



Specifications

MECHANICAL

Maximum chamber diameter	0.478 cm
Drive cable diameter	0.478 cm
Chamber length	5.56 cm
Drive cable length	53.3 meters
Connector	Amphenol #27-7

MATERIAL

Chamber	
Outer shell	304 Stainless steel
Inner electrodes	304 Stainless steel
Insulation	Alumina ceramic
Detector Cable	
Outer sheath	Inconel 600
Center conductor	Inconel 600
Insulation	Al ₂ O ₃
Drive cable	
Helix, lay wires, coil	Carbon steel
(Note 1)	
Neutron sensitive material	
Description	Uranium enriched 93% in U-235
Total quantity U-235	0.4 mg

MAXIMUM RATINGS

Voltage between electrodes	200 Volts
Temperature	375° C
Thermal neutron flux	2 X 10 ¹⁴ nv
Burn-up life	
for 10% decrease in sensitivity	3 X 10 ²⁰ nvt

IMPEDANCE

Resistance @ 25° C	> 5 X 10 ¹² ohms
375° C	> 10 ⁸ ohms
Capacitance	
Detector plus cable (Std. Lgth.)	16,000 pf

TYPICAL OPERATING CHARACTERISTICS

Voltage	100 Volts
Thermal neutron flux range	To 1 X 10 ¹⁴ nv
Thermal neutron sensitivity	
(perturbed) (Note 2)	1.5 X 10 ⁻¹⁷ amp/nv = 20%
Gamma sensitivity	1.2 X 10 ⁻¹⁴ amp/R/hr = 20%

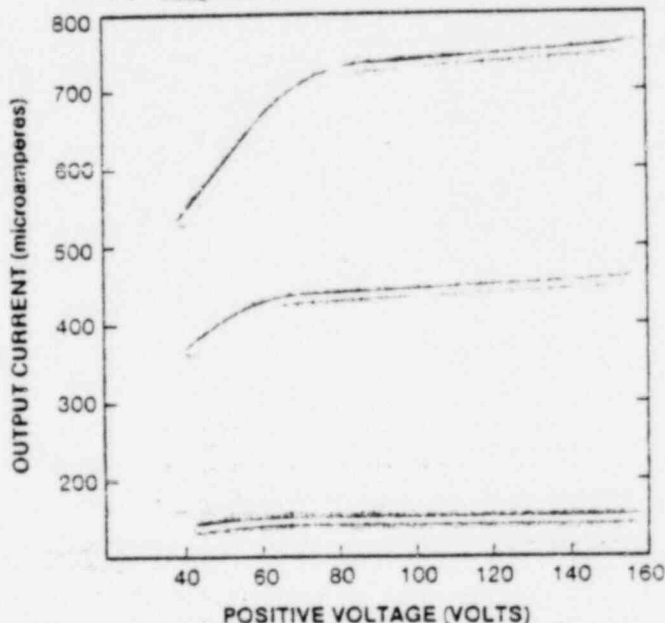
NOTE 1: User must specify whether his system requires right or left hand drive.

NOTE 2: Before shipment, sensitivity of each detector is calibrated in a pool-type test reactor with effective cross section of 500 barns and at ~ 10¹⁷ nv.

1143 143

POOR ORIGINAL

TYPICAL SATURATION CHARACTERISTICS



reuter  stokes

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Phone (516) 475-8343