



**Radio Frequency Current Transducers  
Rogowski Coil Type  
Type 991/021/R/xx, -/S/xx, and -/SP/xx**

A number of designs of radio frequency current transducers based on the Rogowski Coil principle are available. These are primarily designed for use in measuring high frequency current pulses such as those generated by electrical discharge processes. As the transducers are based on an air cored principle, they are not subject to the usual limitations of saturation and non-linearity of the wide band ferrite current transformers. Thus they can be used to measure rf current signals and reject low frequency currents when installed on cables and bus bar carrying large power frequency currents.

Two preferred designs are provided. One being a closed ring (type 991/021/R/xx) that is installed in systems where it is possible to break the circuit to install the transducer. The second is a split ring type (991/021/S/xx) which is hinged and has a clasp. It is designed to permit the transducer to be installed without breaking the circuit. The additions of the splitting mechanism increases costs and reduces the specification, so should only be consider for installation where the option of splitting the cable ends is not available.

The standard transducers are made available in four sizes with 200mm, 160mm, 100mm, and 70mm diameter holes.

For situation where the standard shape and size transducers are unsuitable, special transducer can be designed.



*Rogowski Coil RF Current Transducers*

## Specification

### Electrical Specification

		Type 991/21			
		/R/07	/R/10	/R/16	/R/20
Sensitivity	S	0.1 V/A	0.1 V/A	0.1 V/A	0.1V/A
Low Frequency Limit	$\omega_{lf}$	100kHz	100kHz	100kHz	100kHz
High Frequency Limit	$\omega_{hf}$	>100MHz	>100MHz	>100MHz	>100MHz
Rise time	$\tau_r$	<3nS	<3nS	<3nS	<3nS
Droop time	$\tau_d$	1.5 $\mu$ s	1.5 $\mu$ s	1.5 $\mu$ s	1.5 $\mu$ S
Terminating Impedance	Z	50 $\Omega$	50 $\Omega$	50 $\Omega$	50 $\Omega$

### Physical Dimensions

		Type 991/21			
		/R/07	/R/10	/R/16	/R/20
Aperture		70mm	100mm	160mm	200mm
Outer Diameter		146mm	176mm	236mm	276mm
Thickness		34mm	34mm	34mm	34mm
Cable length		3m	3m	3m	3m
Weight		0.6kg	0.9kg	1.3kg	2kg

The devices are assembled in an aluminium case which should be earthed to the plant at the point of installation. It is the installers responsibility to provide the insulation necessary for the operating voltage of the system on which it is installed. In many applications it is possible to install the transducers in terminal boxes of the plant under test. Then the insulation on the cable ends can be used to provide this insulation, the transducer being installed symmetrically around the cable with a small clearance to the cable outer surface. so not to affect the creepage distances.

There is a wide range of other transducers and instrumentation available to assist organisations interested in condition monitoring of electrical plant. A number of application notes are also available.

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