

NOVARIS Coaxial Power Surge Protection

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In the event of a lightning strike, protecting your expensive transmitter from a potentially destructive power surge is obviously an important precaution.

When an overvoltage surge does occur, a **Novaris Coaxial Surge Protector** installed in the cable line will give your transmission equipment the greatest chance of survival.

A **Ground Earthing Kit** in the cable line is still vitally important as well.

Installation Point

The surge protector should be installed near the end of the cable line, ideally at the entry point into a building.

The N-Type Female/Female protectors are suitable for bulkhead mounting through a cable entry plate in a wall.

If this is not possible, install a protector between the main feeder and flexible tail, or at the equipment antenna receptacle.

Fast Response Gas Discharge Tube Protection

Novaris surge protectors feature a fast response gas filled arrester that is connected between the two conductors of the coaxial cable.

During normal operation the gas arrester is open-circuit and does not affect RF signal transmission, insertion loss or return loss.

In the event of a power surge, the gas filled surge arrester instantly fires, clamping the voltage between the inner and outer conductors of the coaxial cable. This becomes a virtual short circuit with a small residual voltage. The bulk of the surge is diverted to ground, minimising let-through voltage and giving your connected equipment the greatest chance of survival.

Following a lightning strike, the gas discharge tube will most likely have been destroyed. The surge protector will then need to be replaced.

For 3 GHz models, the gas discharge tube alone can be replaced.

Maximum Frequency

For standard models the maximum operating frequency is **2 GHz**.

For higher frequencies up to **3 GHz**, there are N-Type Male and Female combinations available which also feature a replaceable gas discharge tube.



Connectors

Novaris manufacture a range of coaxial surge protectors to suit the most common Male and Female connectors used :

N = N-Type (Female for Bulkhead mount)

B = BNC

D = 7/16 DIN (no mounting bracket option available)

F = F-Type

U = UHF

T = TNC

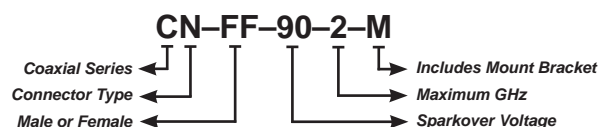
Power and Voltage Selection

The clamping voltage of the surge protector must be greater than the peak voltage on the line. This is particularly important when used for transmitting applications.

Also the voltage of the gas filled surge arrester must be selected according to the power level of the equipment that is to be protected. For example, a 100 watt transmitter would be protected with a 230 volt gas-filled surge arrester.

<u>Power at 50 Ohms</u>	<u>Gas Discharge Tube Sparkover Voltage</u>
0 to 40 Watts	90 Volts
40 to 125 Watts	230 Volts
125 to 300 Watts	350 Volts
300 to 800 Watts	600 Volts
800 to 1,000 Watts	1,000 Volts

Order Code Naming Convention



Examples :

- CN-FF-90-2** N-Type Female to N-Type Female, 90 Volt, 2 GHz
- CN-MF-90-3** N-Type Male to N-Type Female, 90 Volt, 3 GHz
- CN-FF-1000-2** N-Type Female to N-Type Female, 1000 Volt, 2 GHz
- CD-MF-90-2** 7/16 DIN Male to 7/16 DIN Female, 90 Volt, 2 GHz

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RF Equipment Protection up to 2GHz (90, 230 and 350 Volt)

Novaris gas discharge surge protectors are capable of passing RF signals to 2GHz (limited by connector type). N-type female / female protectors are suitable for bulkhead mounting.

C N - FF - 90 - 2 - M

Product Series _____ Options
Connector _____ f_c
Gender _____ U_c

CN-MF-90-2 **CN-FF-90-2** **CN-MF-230-2** **CN-FF-230-2** **CN-MF-350-2** **CN-FF-350-2**



Electrical Specifications		Series			
Connection type		Signal-Earth			
Modes of protection		Signal-Earth			
Sparkover voltage	U_c	90VDC	230VDC	350VDC	
Maximum discharge current (8/20 μ s)	I_{max}	20kA			
Power rating		0 - 40W	40 - 125W	125 - 300W	
Maximum working frequency	f_c	2GHz			
Voltage protection level @ 3kA (8/20 μ s)	U_p	<650V	<820V	<1.1kV	
Characteristic impedance		50 Ω (75 Ω F-type only)			
VSWR		<1.1:1			
Return loss		>26dB			
Insertion loss		<0.2dB			

Mechanical Specifications							
Operating temperature / humidity		-40 to +85°C / 0 to 90% non-condensing					
Connection type		N-type					
Connection orientation		M / F	F / F	M / F	F / F	M / F	F / F
Mounting		Inline / bulkhead (N-type only)					
Environmental		IP 55					
Enclosure / colour		Aluminium / black					
Weight		150g					

Connector type variation							
BNC		B					
7/16 DIN		D (Mounting bracket not available)					
F-type		-	F	-	F	-	F
N-type (bulkhead mount female)		N	Standard	N	Standard	N	Standard
UHF		U					
TNC		T					

Standards Compliance
ITU-T K.44
AS/NZS 1768
IEEE C62.41
BS 6651
CP 33
IEC 61643-21
UL497B

Options							
Mounting bracket		M					

Dimensions												
Configuration	CB-MF	CB-FF	CD-MF	CD-FF	CF-FF	CN-MF	CN-FF	CU-MF	CU-FF	CT-MF	CT-FF	
Width	26mm		Ø40mm		26mm							
Height	26mm		Ø40mm		26mm							
Maximum length	64mm	61mm	70mm	73mm	57mm	64mm	72mm	57mm	80mm			

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RF Equipment Protection up to 2GHz (600 and 1,000 Volt)

Novaris gas discharge surge protectors are capable of passing RF signals to 2GHz (limited by connector type). N-type female / female protectors are suitable for bulkhead mounting.

C N - FF - 600 - 2 - M

Product Series _____ Options
Connector _____ f_c
Gender _____ U_c

CN-MF-600-2 CN-FF-600-2 CN-MF-1000-2 CN-FF-1000-2



Electrical Specifications			
Connection type		Series	
Modes of protection		Signal-Earth	
Sparkover voltage	U_c	600VDC	1000VDC
Maximum discharge current (8/20 μ s)	I_{max}	20kA	
Power rating		300 - 800W	800 - 1000W
Maximum working frequency	f_c	2GHz	
Voltage protection level @ 3kA (8/20 μ s)	U_p	<1.3kV	<1.5kV
Characteristic impedance		50 Ω (75 Ω F-type only)	
VSWR		<1.1:1	
Return loss		>26dB	
Insertion loss		<0.2dB	

Mechanical Specifications			
Operating temperature / humidity	-40 to +85°C / 0 to 90% non-condensing		
Connection type	N-type		
Connection orientation	M / F	F / F	M / F F / F
Mounting	Inline / bulkhead (N-type only)		
Environmental	IP 55		
Enclosure / colour	Aluminium / black		
Weight	150g		

Connector type variation			
BNC	B		
7/16 DIN	D (Mounting bracket not available)		
F-type	-	F	- F
N-type (bulkhead mount female)	N	Standard	N Standard
UHF	U		
TNC	T		

Options	
Mounting bracket	M

Dimensions											
Configuration	CB-MF	CB-FF	CD-MF	CD-FF	CF-FF	CN-MF	CN-FF	CU-MF	CU-FF	CT-MF	CT-FF
Width	26mm		Ø40mm	Ø40mm	26mm						
Height	26mm				26mm						
Maximum length	64mm	61mm	70mm	73mm	57mm	64mm	72mm	57mm	80mm		

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RF Equipment Protection up to 3GHz (90, 230 and 350 Volt)

Novaris gas discharge surge protectors are capable of passing RF signals to 3GHz (limited by connector type). N-type female / female protectors are suitable for bulkhead mounting.



C N - FF - 90 - 3

Product Series _____ f_c
 Connector _____ U_c
 Gender _____

CN-MF-90-3

CN-FF-90-3

CN-MF-230-3

CN-FF-230-3

CN-MF-350-3

CN-FF-350-3



Electrical Specifications		Series			
Connection type		Signal-Earth			
Modes of protection		Signal-Earth			
Sparkover voltage	U_c	90VDC	230VDC	350VDC	
Maximum discharge current (8/20 μ s)	I_{max}	20kA			
Power rating		0 - 40W	40 - 125W	125 - 300W	
Maximum working frequency	f_c	3GHz			
Voltage protection level @ 3kA (8/20 μ s)	U_p	<650V	<820V	<1.1kV	
Characteristic impedance		50 Ω			
VSWR		<1.1:1			
Return loss		>26dB			
Insertion loss		<0.2dB			

Mechanical Specifications							
Operating temperature / humidity		-40 to +85°C / 0 to 90% non-condensing					
Connection type		N-type					
Connection orientation		M / F	F / F	M / F	F / F	M / F	F / F
Mounting		Inline / bulkhead					
Maximum bulkhead thickness		9mm					
Environmental		IP 55					
Enclosure / colour		Brass / silver					
Weight		160g					

Standards Compliance
ITU-T K.44
AS/NZS 1768
IEEE C62.41
BS 6651
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Dimensions							
Width		26mm					
Height		26mm					
Maximum length		65mm	72mm	65mm	72mm	65mm	72mm

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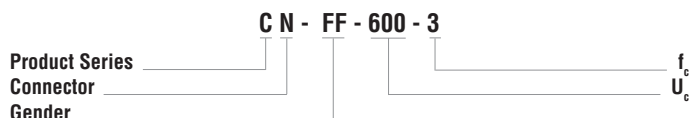
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RF Equipment Protection up to 3GHz (600 and 1,000 Volt)

Novaris gas discharge surge protectors are capable of passing RF signals to 3GHz (limited by connector type). N-type female / female protectors are suitable for bulkhead mounting.



CN-MF-600-3

CN-FF-600-3

CN-MF-1000-3

CN-FF-1000-3



Electrical Specifications			
Connection type		Series	
Modes of protection		Signal-Earth	
Sparkover voltage	U_c	600VDC	1000VDC
Maximum discharge current (8/20 μ s)	I_{max}	20kA	
Power rating		300 - 800W	800 - 1000W
Maximum working frequency	f_c	3GHz	
Voltage protection level @ 3kA (8/20 μ s)	U_p	<1.3kV	<1.5kV
Characteristic impedance		50 Ω	
VSWR		<1.1:1	
Return loss		>26dB	
Insertion loss		<0.2dB	

Mechanical Specifications			
Operating temperature / humidity	-40 to +85°C / 0 to 90% non-condensing		
Connection type	N-type		
Connection orientation	M / F	F / F	M / F
Mounting	Inline / bulkhead		
Maximum bulkhead thickness	9mm		
Environmental	IP 55		
Enclosure / colour	Brass / silver		
Weight	160g		

Dimensions			
Width	26mm		
Height	26mm		
Maximum length	65mm	72mm	65mm

Standards Compliance

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