



Griffin Redundancy Switch Modules RF, ASI & optical options

ETL's Griffin chassis are designed to give total flexibility in managing RF, ASI & optical signals. Different modules can be fitted dependent on application, which can be switched independently (individual mode) or together (simultaneous mode).

Typical redundancy applications:

- Satellite modulator
- LNB / Downconverter
- Modem
- Antenna selection / blockage



Model GRF-010-XXXX

2x1 RF Redundancy switch module

RF level detection for auto switchover

850 - 2450 MHz operating frequency range

DC & 10MHz Pass on all ports

Full range of RF connectors and impedances



Model GRF-011-XXXX

2x1 RF Redundancy switch module

RF level detection for auto switchover

DC - 2450 MHz operating frequency range

DC & 10MHz Pass on all ports

Full range of RF connectors and impedances



Model GRF-050-XXXX

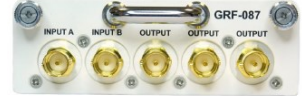
2x1 RF Redundancy switch module

DC - 2450 MHz operating frequency range

Latching relay switch

DC & 10MHz Pass on all ports

Full range of RF connectors and impedances



Model GRF-087-B7B7

2x1 ASI Redundancy switch module

ASI operating signal type

1:3 distribution amplifier on the output

Level detection for auto switchover

Failsafe relay switch and amplifier by-pass

***RF MODULES FOR GRF-C910-1U CHASSIS ONLY**



Model GRF-200-XXXX*

1x2 RF Redundancy SPDT TX module

850 - 2150 MHz operating frequency range

Solid state switch for fast switchover

Full range of RF connectors and impedances



Model GRF-201-XXXXXX*

2x1 RF Redundancy SPDT RX module

850 - 2150 MHz operating frequency range

Solid state switch for fast switchover

Beacon Receiver Ports

Full range of RF connectors and impedances



Model GRF-202-XXXXXX

2x1 Optical Redundancy switch module

1240nm to 1640nm optical wavelength

Latching relay switch

Less than 1.8dB insertion loss



Model GRF-204-XXXXXX

2x2 Optical Redundancy switch module

1240nm to 1640nm optical wavelength

Latching relay switch

Less than 1.8dB insertion loss

SWITCH





Switch Module Specifications and operating parameters

Technical Specifications—RF Modules					
Model Numbers	Model GRF-010-XXXX	Model GRF-050-XXXX	Model GRF-011-XXXX		
Function	2 x 1 RF Redundancy switch to the output. Switch over based on RF level detection. Manual switch over is also available. Not bidirectional.	2 x 1 RF Redundancy switch to the output. Manual switch.	2 x 1 RF Redundancy switch to the output. Switch over based on RF level detection. Manual switch over is also available. Not bidirectional.		
Capacity	2 inputs, 1 output	2 inputs, 1 output	2 inputs, 1 output		
Module slots used	1	1	1		
RF Connectors	BNC 50/75Ω, SMA 50Ω, F 75Ω N-type 50Ω (available as a special option)				
Frequency	850 to 2450 MHz	DC to 2450 MHz	DC to 2450 MHz		
Switch Type	Latching relay switch	Latching relay switch	Latching relay switch		
Contact Rating	28 V DC, 250 mA	28 V DC, 250 mA	28 V DC, 250 mA		
Switching Cycles	>10E6 (no DC) >10E5 (28 V DC, 250 mA)				
Insertion Loss	2 ± 1 dB Maximum Typical 1 dB, Passive RF Path				
Flatness	Over full band	± 1 dB	± 1 dB	± 1 dB	
	Over any 40 MHz	± 0.25 dB	± 0.25 dB	± 0.25 dB	
Isolation	Minimum	45 dB	45 dB	45 dB	
	Typical	60 dB	60 dB	60 dB	
Noise Figure	2 ± 1 dB	2 ± 1 dB	2 ± 1 dB		
Input Return Loss	50Ω SMA	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	
	50Ω N-type	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	
	50Ω BNC	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	
	75Ω BNC	2150 MHz	12 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical
		2450 MHz	12 dB minimum, 14 dB typical	12 dB minimum, 14 dB typical	12 dB minimum, 14 dB typical
	75Ω F-Type	2150 MHz	12 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical
2450 MHz		12 dB minimum, 14 dB typical	12 dB minimum, 14 dB typical	12 dB minimum, 14 dB typical	
Output Return Loss	50Ω SMA	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	
	50Ω N-type	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	
	50Ω BNC	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	
	75Ω BNC	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	
	75Ω F-Type	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	14 dB minimum, 16 dB typical	
Input RF level detection	0 to -50 dBm	N/A	0 to -50 dBm RF Detection from 10-2450MHz		
RF ports	DC and 10MHz Pass	DC and 10MHz Pass	DC and 10MHz Pass. 10MHz will register on RF detection		
Damage Level	+10 dBm (10mW) max Total RF power, at any RF port	+30 dBm max Total RF power, at any RF port	+10 dBm (10mW) max Total RF power, at any RF port		
Spec version	1.2	1.1	1.1		

Technical Specifications —ASI Modules	
Model Number	Model GRF-087-B7B7
Function	2 x 1 ASI Redundancy switch to the output with 1:3 distribution amplifier. Switch over based on Carrier Presence. Manual switch over is also available. Not bidirectional
Capacity	2 inputs, 3 outputs
Module slots used	1
RF Connectors	BNC 75Ω
Switch Type	NON Latching and failsafe bypass
Signal Type	ASI/SD-SDI/HD-SDI/3G-SDI
Input Level	300-800 mV
Output Level	>600 mV
Isolation on/off	>50 dB
Switching Cycles	>10E6 (no DC)
Spec version	1.0

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.
 Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.
 Note 3: Switch functionality is determined by modules in use.





Switch Module Specifications and operating parameters

Technical Specifications—RF Modules				
Model Numbers	Model GRF-200-XXXX	Model GRF-201-XXXXXX		
Function	1 x 2 RF redundancy switch TX module. Unity gain and fast switchover solid state switches.	2 x 1 RF redundancy switch, SPDT RX module. 12dB gain. Solid state switches for fast switch over. 2-way splitter on input ports.		
Capacity	1 inputs, 2 output	2 inputs, 1 output		
Module slots used	1	1		
RF Connectors	BNC 50/75Ω, SMA 50Ω, F 75Ω N-type 50Ω (available as a special option)			
RF Ports	10 MHz & DC blocked	10 MHz & DC blocked		
Frequency	850 to 2150 MHz	850 to 2150 MHz		
Switch Type	Solid state switch	Solid state switch		
Gain	N/A	12dB±0.5		
Isolation	30dB	30dB		
Flatness	50Ω SMA	Over full band	±0.75	±1
		Over any 36 MHz	±0.25	±0.2
	50Ω N-type	Over full band	±0.75	±1
		Over any 36 MHz	±0.25	±0.2
	50Ω BNC	Over full band	±0.75	±1
		Over any 36 MHz	±0.25	±0.2
	75Ω BNC	Over full band	±1.2	±1.5
		Over any 36 MHz	±0.5	±0.5
75Ω F-type	Over full band	±1.2	±1.5	
	Over any 36 MHz	±0.5	±0.5	
Insertion Loss	50Ω SMA	<2dB	N/A	
	50Ω N-type	<2dB		
	50Ω BNC	<2dB		
	75Ω BNC	<3dB		
	75Ω F-Type	<3dB		
Input Return Loss	50Ω SMA	16dB typical, 14dB minimum		
	50Ω N-type	16dB typical, 14dB minimum		
	50Ω BNC	14dB typical, 12dB minimum		
	75Ω BNC	14dB typical, 12dB minimum		
	75 Ω F-Type	14dB typical, 10dB minimum		
Output Return Loss	50Ω SMA	16dB typical, 14dB minimum		
	50Ω N-type	16dB typical, 14dB minimum		
	50Ω BNC	14dB typical, 12dB minimum		
	75Ω BNC	10dB typical, 8dB minimum		
	75 Ω F-Type	10dB typical, 8dB minimum		
Switchover Time	<150ns. Drop out time between switching from one path to another.			
Switching Time	<20ms. Time for path to switch from receipt of switch control input at parent chassis.			
Input RF Power	+16dBm			
DC Consumption	3W			
Spec version	1.1	1.1		

Technical Specifications—Optical Module		
Model Number	Model GRF-202-XXXXXX	Model GRF-204-XXXXXX
Function	2 x 1 Optical Redundancy switch. Single mode fibre. Latching	2 x 2 Optical Redundancy switch. Single mode fibre. Latching
Optical Wavelength	1240nm to 1640nm	1240nm to 1640nm
Module slots used	1	1
Connectors	SC-APC & FC-APC	SC-APC & FC-APC
Optical Insertion Loss	< 1.8 dB	< 1.8 dB
Optical Return Loss	40dB	40dB
Optical Isolation	Typical 75dB. Minimum 60dB.	Typical 75dB. Minimum 60dB.
Switching Time	Typical 5ms. Minimum 15ms. From receipt of switchover command to parent chassis.	Typical 5ms. Minimum 15ms. From receipt of switchover command to parent chassis.
Monitoring	Optical switch current	Optical switch current
Spec version	1.1	1.0

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.
 Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.
 Note 3: Switch functionality is determined by modules in use.

ETL SYSTEMS LIMITED
Coldwell Radio Station
Madley
Hereford
England HR2 9NE

TELEPHONE
+44 (0)1981 259020

EMAIL
info@etlsystems.com

FACSIMILE
+44 (0)1981 259021

WEB
www.etlsystems.com

